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ABSTRACT

This manual is the fifth in a series aimed at giving undergraduate students sophistication in dealing with actual research problems, and in the discovery and examination of data. It is intended as a supplement to a regular International Relations program. As a laboratory manual, it makes certain suggestions for tools and techniques. Some exercises are intended to be introductory; others presuppose statistical training and experience in data analysis. Concepts and methods covered are: conflict behavior and aggregate data, international images, survey analysis, attitude measurement and content analysis, decision making and simulation, political community formation, voting behavior analysis, international regionalism, game theory, factor analysis. Exercises can be tailored to meet the demands of research facilities in particular places. Assigned and supplementary reading, a codebook, and a glossary are included. ED 026 028 references the other manuals in this series. (SBE)

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UNIVERSITY OF MINNESOTA
DEPARTMENT OF POLITICAL SCIENCE

MANUAL for the INTERNATIONAL RELATIONS LABORATORY

by

Ellen B. Pirro

with the assistance of
Stephen Snyder

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Fall 1969

Introduction

This manual is intended as a supplement for a regular international relations program. Most courses in this area face a variety of problems. As a field, international relations covers a broad range of seemingly disparate topics. Included in these laboratory exercises are many of these areas considered by scholars working in the field today. Not all topics considered significant can be covered in this brief survey, but it is hoped that the student will get a small picture of a wide and fascinating field.

Another difficulty facing the prospective student of international relations is that of coping with the requirements of gathering data and the advanced technology for data processing. In these exercises, the student searches out various kinds of data. In some cases, he must determine what constitutes data. There are enormous variations in the possibilities for data processing. Although this lab manual makes certain suggestions for machinery and techniques, this is one place the class instructor has some scope for decision-making. Many of the exercises can be tailored to meet the demands of facilities in particular places. Some of the exercises are quite simple and constitute an introduction to the research process. Others require some statistical training and practice in data analysis.

In sum, this set of laboratory exercises takes the student of international relations away from note-taking and into action, learning the processes of modern research and analysis.

Naturally many people contribute to an educational enterprise of this type. The authors wish to thank the patient understanding of spouses and families, the long-suffering editors, assistants and typists, and especially the many students who suffered through earlier stages of this work criticizing all the way. Without their comments and evaluations, this would not have been possible. The authors, of course, claim as their own any errors contained in these exercises.

Editor's Preface

This manual is the fifth of a series aimed at bringing to undergraduate teaching the sophistication and the excitement of dealing with genuine research problems, the discovery and examination of data, rather than passive acceptance of conclusions. Members of the Department of Political Science at the University of Minnesota have been involved in the development of such a program for nearly six years. The first of the series -- on political behavior, written by William Flanigan and David RePass -- was issued in 1967. A revised edition of that effort is available from Little, Brown and Company. The second -- on comparative politics by Edwin Fogelman -- will be available from them in Spring 1970. We expect over the course of the next year to issue similar -- but individualized -- efforts as follows: community power, Thomas Scott; legislative behavior, Eugene Eidenberg; and quantitative methods, Roger Benjamin and William Flanigan. As these are revised for final publication, they will also be published by Little, Brown and Company.

The project itself is supported by the Office of Education and the National Science Foundation. In accordance with the principles of public support, and our own purposes, we are making all materials available without restriction, asking only that credit be given for any use of the materials.

Samuel Krislov
Minneapolis
November 1969

Exercise 1

An Introduction to International Relations: Data and Diversity

Assigned Reading:

Bruce M. Russett, Recent Trends in World Politics (Macmillan, 1967), first and last chapters.
Chadwick Alger, "International Relations," in International Social Sciences Encyclopedia, Vol. 8, 1967, pp. 60-69.

The world today consists of over one hundred nation-states and a variety of dependencies. Each year the relations among these many units become more complex, more numerous and wider in scope. To make meaningful statements about international relations today, you will have to explore the range of topics within this growing field and some of the data which helps provide answers to our many research questions. Thus, this whole set of laboratory exercises is in one sense an introduction to the field of international relations.

One of the major considerations of study in this field is the great diversity of topics included. Pick up an international relations textbook. How many separate topics are covered? How many different topics are considered in the articles listed above? Do they relate to each other? In the following exercises an effort is made to select topics of interest from among these lists, but this by no means exhausts the field. A wider range of material remains for you to explore.

Each topic under consideration has a number of research questions. To answer these questions there is a wide array of data and of methods. Unlike other fields where regular institutions and procedures generate regular data, international relations has no ready-made data.[1] Much of your work in these exercises will be the discovery and generation of your own data. To do this you should know exactly what you are looking for, how to go about finding it, and how to put the data together to answer your research questions.[2]

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[1] Consider, for example, American politics. Regular political surveys are made by reputable poll-takers; a regular census provides various statistics on all parts of the country; and television, radio and newspapers give an idea of politicians' views on a host of issues. In international relations few surveys cross national boundaries or consider international issues; many countries have no accurate census; and news of international import, such as nuclear disarmament negotiations, is often buried in the back pages of those newspapers who do report it.

[2] If any of these terms give you trouble, consult the glossary in this book for definitions and read the appendix to this first exercise, "A Footnote on Theory." Even if you have familiarity with much of this material, a quick reading of the appendix should refresh your memory on some of these basic ideas.

Most research questions are given as hypotheses. A hypothesis is a statement which links variables in the form:

If A behaves thus, then B will do this.

Note that A and B are not necessarily doing the same thing. One hypothesis might be, "If the level of hostility between two nations increases, then war (or aggression) usually results."

From the list below select several variables to form three hypotheses you might be interested in testing.

1. instability
2. integration
3. United Nations
4. nation-state
5. community
6. political development
7. nuclear weapons
8. revolution
9. aggression
10. imperialism
11. Foreign Office
12. treaty

Hypotheses:

1. ____________________

2. ____________________

3. ____________________

Note that in most cases, these hypotheses must be qualified. The words always and never are dangerous to use. In international relations the situations are so complex that exceptions for every rule exist. It is difficult to say, flatly: "If diplomacy is used, then war will be averted." Rather, the hypothesis should be stated: "If diplomacy is used, then the likelihood of war may be reduced."

In each of the hypotheses formed above select the independent variables:

1. ____________________

2. ____________________

3. ____________________

Now find the dependent variables:

1. ____________________

2. ____________________

3. ____________________

Though this may seem a simple exercise at this stage, it will become very valuable when dealing with the more complex situations in the field.

In order to test these hypotheses, it is necessary to operationalize them. This means that for each of the variables one or more indicators must be found. An indicator is one or more devices which point to something else. It is usually not a direct measurement of a phenomenon. For instance, to measure hostility of a government it is indeed difficult to go to government officials like the secretary of state and take their hostility pressure, even if one were to do it every day. Asking an official how hostile he is feeling in the morning is more likely to depend on the temperature of his coffee and eggs than on the international situation. But if we use as indicators some of the directive actions prescribed in department memos, declarations, troop movements, protests, etc., we are more likely to gage the level of hostility felt. Caution is needed in selecting such indicators so as to make them relevant to the variables in the hypotheses. Bad indicators make bad studies, even when the hypotheses are worthwhile. For each of the six variables listed below select one indicator which you would use in measuring its existence.

1. instability ____

2. community ____

3. nation-state ____

4. aggression ____

5. revolution ____

6. imperialism ____

Appendix to Exercise 1

A Footnote on Theory

No amount of data is very useful to the student of international relations unless it serves to enhance his understanding of the way in which states interact in the international arena. In other words, data is only relevant in the context of some conceptual framework, model or theory of international relations. You should be familiar with these terms and their use for the study of international relations.

All the data generated and analyzed in these exercises depends upon some underlying theory for its meaning. To illustrate the problem of selecting data, think for a moment of the billions of events which occur throughout the world each day. A bridge collapses in Ohio; a doctor operates on a patient in Laos; a strike occurs in France; or the Israelis and Egyptians clash in the Sinai peninsula. All of these events could be considered data for some purposes. But, how do we know which is relevant for our study? It is at this point that we are aided by our conceptual framework, that is, by the superstructure of connected concepts which form our hypotheses. A conceptual framework brings order to the large number of events occurring in the universe; it suggests which data is important for our purposes and which should be ignored at this time. It may provide ways of grouping that data into meaningful patterns.

Behind each conceptual framework lies a theory. Definitionally, a theory is a body of interrelated laws, rules, axioms, or hypotheses which purports to explain the relationships which exist between a set of concepts or events. In international relations, a theory provides a basis for limiting and ordering the almost infinite variety of events and interactions that occur within and across national boundaries. It specifies the relevant variables, suggests questions which might be of interest and explains the relationships among the variables or concepts. This means that a theory explains why and how events and processes take place. Through such an explanation a theory hopes to predict future patterns of interaction in similar circumstances. For example, if in international relations a theory listed variables and explained the relationship between these variables as leading to warfare, then we would expect, if the theory was true, that every time those same variables appeared and the same relationships existed, warfare would also occur. If a decision-maker or national policy-maker is familiar with these theories, he can use them when he makes decisions for the international relations of his nation.

Today, there is an emphasis on theory which is based on observation and explanation of observable events. This has led to a need for data which can be quantified and thus manipulated by statistical or other mathematical methods. These exercises will lead you to some familiarity with a variety of methods or tools. Oftentimes the theories are not emphasized, so it is well to be cognizant at the outset that they are present and significant.

Exercise 2

Methods and Tools

Assigned Readings:

Any introductory material from the data center at your school.
Eugene Webb, et. al., Unobtrusive Measures (Rand McNally, 1966), chapter 1.
Kenneth Janda, Data Processing (Northwestern University Press, 1965), chapters 1-4.

This exercise turns from questions of when and why to how? How do we find out what we want to know? The ways in which we manipulate data to form answers to our research questions are our methods. Every researcher uses some method. International commentators on TV and newspapers use historical methods, or journalistic analysis. Often, however, they are not explicit about what they found or where and how they found it. To be fully aware of the implications of the results obtained from research, the full potentials of the methods used must be explored as well as the implications of such research decisions, such as selecting one method over another, grouping one set of data with another, etc.

Once the researcher has formulated his hypotheses, he must select the method(s) most appropriate for examining these hypotheses and collect the necessary data and subject it to various analytical routines. But how does the researcher know what information will best answer or test his hypotheses in the real world? One of the most difficult problems faced by any researcher is this task of relating his questions to events or phenomena in the real world which will provide information for his questions or hypotheses. This is the central task of methodology. As pointed out in Exercise 1, the theory or conceptual framework underlying the researcher's hypotheses provides the initial guidelines for selecting data to answer his questions. Once he has decided what data he needs, the researcher must select a method(s) which best allows him to collect and explore the data and isolate possible information bearing on the questions. There is a reciprocal relationship here between the method selected and the data used. The form of the method eliminates our ability to use particular forms of data. For example, doing a foreign policy survey precludes our analysis of written materials on the topic unless we also opt for some form of content analysis. Similarly, the access to data sources and availability of materials often restricts the choice of methods. Not everyone can survey a national sample. Also, few students have the resources to do an extensive content analysis like the World War II propaganda studies.

In international relations, four major kinds of methods can be distinguished: (1) aggregate analysis, (2) survey research, (3) content analysis, and (4) simulation. Each of these methods has advantages and disadvantages. Each uses a different set of information as data. Aggregate analysis implies the piling up of information. Its users often refer to statistics about large groups of people or large series of information. Analysis of aggregate data enables the researcher to make very general statements about large groups of people or large bodies of some kind. He cannot talk about specific people and specific behavior. Survey research employs the tool of the public opinion poll, refined with various methodological techniques and applied to selected individuals in the culture(s) studied. Thus each individual surveyed represents a "type" of individual about which the researcher wants to make general statements. His conclusions are about these types and about their particular attitudes and behavior, not about the general behavior of the larger groups. Content analysis refers to various types of explicit analysis of written or oral materials. Here the researcher can analyze writings and make statements about the attitudes and policies expressed in print. He cannot form any direct conclusions about masses of people from doing his content analysis. Simulation refers to the creation in a laboratory setting of a model of something in international relations, which can then be tested and re-tested in various ways. A simulation allows the researcher to re-examine some international situation in a controlled laboratory setting. He can then change certain parameters and observe the effects of these changes on the simulated situation, something which cannot be done in the real world. But a simulation has all the limitations associated with any model which simplified the real state of affairs.

For the researcher, selection of his research hypotheses and methods, and the collection of data are only the starting points. Next he must decide how to organize, combine and analyze the data. Each of the methods described above involves the collection of large quantities of data. For example, a survey often questions hundreds of individuals, while content analysis may involve a number of documents and hundreds of words or themes. Another characteristic of these methods is that they usually enable one to quantify the data so that it can be easily combined and analyzed using various statistical or quantitative analytical processes. Even where data consists of qualitative statements in survey methods, it can be reduced to numbers by various coding processes.

The actual analysis of the data depends on the types of questions one has asked of the data. The researcher may be interested in the frequency of occurrence of some international event, the magnitude or strength of the event, or its relationship to other events. For example, in a survey of students you may want to know how frequently a particular image of some country occurs in your sample, how intensely this image is held, and how it is related to such things as the student's age, sex, political affiliation, etc. Analyzing frequencies is essentially a counting process. However, determining the significance of the relationships found in the data can be more difficult, especially when large amounts of data are involved.

One easy method to handle large quantities of data is through the use of IBM data processing equipment. The great advantage of IBM or other data processing equipment is that it allows you to represent items of information in your data in terms of numbers punched on IBM cards. This permits you to store large quantities of data and quickly retrieve and analyze this data. If you are not familiar with the IBM computer card and its format, your instructor will provide you with this information. Your instructor can also discuss with you the logic behind analysis and processing of data in this manner.

As a part of this week's assignment, you will visit the data processing center on campus and inspect its various facilities. You will want to note what equipment and assistance are available to you. Most colleges now possess a computer and "packaged programs" to do various kinds of basic statistics. You will want to know what kinds of statistics are available for your use, how easy they are to use, and whether there is someone available to assist you in using these programs. It will also be useful to know if there is additional assistance available for preparation of data problems and for other consultations with research problems.

Just as significant as the computer itself, is the availability of peripheral machinery. A key-punch is necessary for the preparation of data. Verifiers, interpreters, and a list machine can help prepare the data for tabulation. A card-sorter can also be used to manipulate the data and set up contingency tables for analyzing the data if you do not have access to a computer. The card-sorter manipulates and tabulates cards. A calculating machine is another useful adjunct. All the statistics which a computer can produce can be done using a calculating machine.

As you visit the data center and observe the processing, you might also want to ask about available materials. Many centers store data of various types and make it available for student use on projects or for additional analysis. Sometimes this data is in departmental centers. It would be useful for you to determine what exists on your own campus.

So far you have examined several different methods for collecting and for analyzing data. Now you must put the data together in some manner that illustrates your findings about the research questions. To do this you must present your data in the clearest possible way. One way which has been used in political science is through frequency tables. A frequency table illustrates the relationship between the variables displayed in it. There is no right or wrong way to compose a table. There are, however, certain points of style which make a table clearer and easier to read.

Table 131: Attitudes Toward Red China by Sex

Attitudes	Male	Female	Total
Hostile	70% (700)	30% (300)	100% (1000)
Neutral	50% (500)	50% (500)	100% (1000)
Favorable	40% (400)	60% (600)	100% (1000)

In this imaginary table note the following characteristics:

(1) A table number is given indicating the place of the table in the material from which it is taken. (Here it is the 131st table in the written material.) The table is referred to by this number when the information is discussed.

(2) Title is a statement that the table contains two variables, sex and attitude toward Red China.

(3) Percentages are given to show the distribution of attitudes on each variable.

(4) The number of cases is given in parentheses to let you know how many instances represent that statistic. In the first entry, for example, 700 cases represent 70%.

To describe the results of this table one could say that more men than women displayed hostile attitudes toward Red China, based on the fact that 70% of all the hostile people are men and only 30% of the hostile people are women. In addition, we can see that more women than men displayed favorable attitudes toward Red China because of the people holding favorable attitudes, 60% are women and only 40% are men.

Let us examine another similar table which contains more details:

Table 132: Attitudes Toward Red China by Sex and by Education

	Male		Female		Total	
Attitudes	High Education	Low Education	High Education	Low Education	High Education	Low Education
Hostile	30% (300)	60% (600)	20% (200)	30% (300)	25% (500)	45% (900)
Neutral	30% (300)	20% (200)	50% (500)	60% (600)	40% (800)	40% (800)
Favorable	40% (400)	20% (200)	30% (300)	10% (100)	35% (700)	15% (300)
Total	1000	1000	1000	1000	2000	2000

Table 132 is a more complex table. It has the same stylistic attributes as Table 131: the title, indications of variables, percentage distributions, and number of cases. Where the former table compared two variables, this table adds a third variable expressed as a "control" variable, which is held constant while the relationship between two variables is examined. Here sex is held constant while the relationship between education and attitude toward Red China is examined. In this table the percentages are computed vertically; in Table 131 they were computed horizontally. Computing the percentages horizontally means we make statements about the table comparing rows. Thus in Table 131 we compared the people who had hostile attitudes with the people who had favorable attitudes. When the percentages are computed vertically we compare the columns. Here in Table 132 we compare those with high education with those who have low education. We could also compare high education men with high education women, etc. To interpret this table we might say that highly educated men are more likely to be favorably disposed toward Red China, while men with low education are more apt to have hostile attitudes. 40% of the highly educated men have favorable attitudes, while only 20% of the low education men have favorable attitudes. In contrast, 60% of the low education men have hostile attitudes toward Red China, while only 30% of the high education men have similar hostile attitudes.

1) Continue the interpretation of Table 132. What can you say about the women's attitudes toward Red China and education? Why?

2) How do low education women compare with low education men? Why?

3) From looking at the distribution of percentages in this table and at the totals given, what general statements can you make about the relationship between education and attitudes toward Red China?

Remember that it is important when describing tables in words to stick to the data contained in each table and to relate what the table shows, including the numbers referred to in the table so the reader can follow you.

Of all the ways of presenting data, this method - the table form - has proven the most useful for international relations studies to date. It gives a clear picture of the structure of the data, the amounts collected, and the ways it is divided. Other ways to present data include graphs (for example, linear graphs and bar graphs), charts of various kinds (e.g., flow charts), and statistics (chi-squares and taus for instance). These and others will be illustrated in subsequent chapters.

Exercise 3

Conflict Behavior: Introduction to Aggregate Data

Assigned Readings:

Rudolph Rummel, "Dimensions of Conflict Behavior Within and Between Nations," General Systems: Yearbook of the Society for General Systems Research, Vol. VIII, 1963.

Any basic manual of statistics - introductory chapter on the nature of statistical methods.

Supplementary Readings:

Kenneth Boulding, Conflict and Defense (Harper, 1962).

Bruce M. Russett, et. al., World Handbook of Political and Social Indicators (Yale University Press, 1964).

One of the central areas of study in international relations is conflict behavior. As a result of the significance attached to this area, the studies are many and complex; the variables used are diverse and often incompatible. Many scholars are now trying to bring order into this chaos. One useful starting point is the problem of definition. On the lines given below suggest a definition of conflict. Then, check this definition against Boulding or one of the other authors suggested above. What has been omitted? Is the definition so vague that almost anything could be considered within it?

____

____

____

These problems are typical of definitions. The area of theoretical definitions is interesting, and we must be cognizant of it. For the time being, however, we will beg many of its questions. Somehow a definition has to be operationalized in terms of the behavior of nation-states of today's world. This is our task. One means of accomplishing it is through the use of aggregate data.

Aggregate data refers to information which has been "aggregated" or summed. Most of the data in prior exercises has been assembled on an individual basis. An individual is "politically active," "bi-lingual," etc. Aggregate data characterizes a unit or entity by summing a particular fact across all the individual sub-elements. Thus, a nation-state can be characterized as "English-speaking" when a summation shows that 62% of its people speak English, even when some of them do not speak English.

There are many relevant questions concerning conflict behavior. One of the most significant is the question, which nations are likely to engage in conflict behavior on an international basis? And, which nations are likely to find a great deal of conflict behavior internally? In other words, where will war occur? Beyond these, are such questions as: what types of conflict behavior are most prevalent? Who employs what conflict methods? What are the aims of the countries engaged in conflict behavior and how do they achieve them? Note that all these questions concern conflict behavior on an aggregate level, at the nation-state level. Conflict behavior is also assumed to be divisible into two parts. Internal conflict occurs within a national entity and concerns only that nation; and external or international conflict is conflict behavior directed toward at least one other nation-state.

Rudolph Rummel has defined conflict behavior as one of a series of specified activities. He has operationalized this definition and tallied the occurrences of this behavior for 105 nations. There are many questions which could be asked about his sources of information, his methods of scoring and tallying, and other problems of definition and operationalization. For now, these questions will be overlooked and his data accepted for analysis. A later exercise will examine the problems involved in compiling aggregate data. The same will hold true of the Bruce Russett, _et_. _al_. data which will be used later in this exercise.

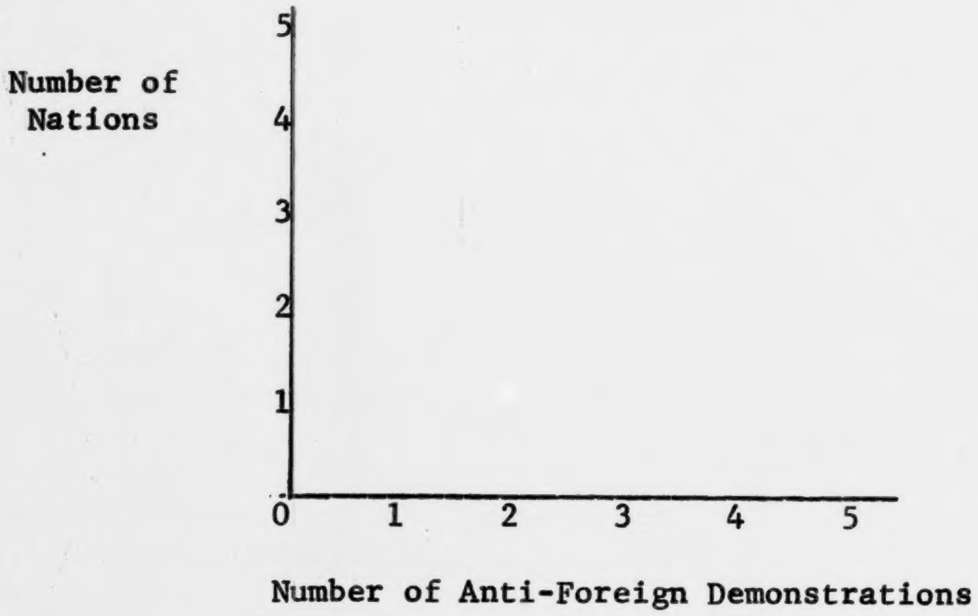
Here we will work with compiled data abstracted from the tables Rummel presents. Table 1 gives the raw conflict behavior (for 1955-7) for 18 nations. Selected behaviors are scored there. Our task is to describe this data in such a way that we will be able to say something about the conflict behavior exhibited by nation-states. To do this we must subject the data to statistical analysis.

Begin by selecting one of the conflict behaviors - "Anti-Foreign Demonstrations." Next rearrange the data so it is rank-ordered, with the highest amount of conflict behavior first, the second highest second and so forth. This shows you one distribution of the data. One question is how to measure the central tendency of the data. By this we mean, do all the nations tend to exhibit similar behavior on this variable or are there wide differences from nation to nation; do they cluster about a center point or spread out widely. The median, a measure of central tendency, is the middle value of the distribution. In this example with 15 cases (nations) it would be the 8th case. Compute this median __________.

The mode, a second method of measurement, is the category or score having the highest frequency of cases. Here it would be the number of anti-foreign demonstrations which the most nations had. The mode is less frequently used than the other measures. Here the mode is ______________ .

The third measure is called the mean, and is probably familiar as the "average" from arithmetic. To compute it add up the scores for each case (the number of anti-foreign demonstrations for the nations) and divide by the number of cases (here 15 nations). The mean for this distribution is _________________.

To obtain a visual image of this distribution, plot a graph on the axes below. On the x-axis plot the score of the number of anti-foreign demonstrations. On the y-axis plot the number of nations which had a particular score. Connect the dots to form a solid line. Label the mean, median and mode.



From this graph you can see that the distribution does not cluster around the center. The mean is located to the left of the central point of the graph's line and this particular distribution has three modes. The curve is not smooth, it has three humps or peaks. In a symmetrical, single-peaked distribution, the mean, median and mode coincide, as shown in Illustration 1. A distribution can be skewed, which means slanted toward either side. Illustrations 2 and 3 show several types of skewed distributions, with a single-peak. A distribution with three peaks is often called tri-modal. What this means in terms of our data, is that the data is not simple to explain. We cannot simply say that most nations have three anti-foreign demonstrations per year and that this is typical behavior. Something more complex is involved and will require further investigation. Incidentally, it can be argued that our number of cases is small and therefore likely to show strange curves of distribution. The larger the number of cases, the more likely the curve will approximate the symetrical, single-peaked model of Illustration 1, which is called a normal distribution.

Illustration 1

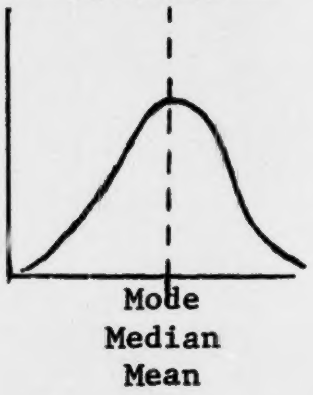


Illustration 2

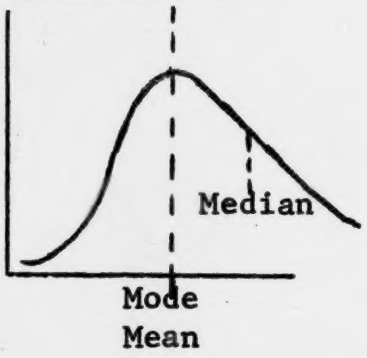
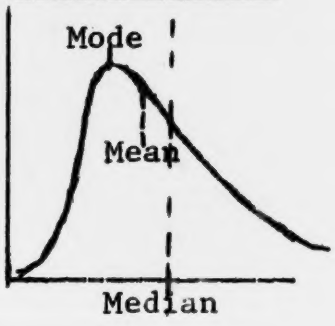


Illustration 3



Indices and Correlation

In the second exercise we were introduced to the notion that the interplay of two variables can be shown in a table. We would like to go further and say something about the relationship between the two variables which a table shows. To investigate these properties of tables we will make some tables using the conflict variables from Table 1 and the variables given in Table 2, which are taken from Russett, et al.

Taking the data on conflict behavior from Table 1, we can see that we need some way of organizing the raw data given there. Actually, Rummel has already commenced the ordering process. He gives the raw data as the mean amount of conflict behavior evidenced by the nation over a three-year period, 1955-7. Looking at the table, a number of types of conflict behavior appear, but there is no indication from the table that one nation evidenced more conflict than another nation. We want some way of combining the various kinds of conflict behavior to make some score for a nation on conflict. The combination of several variables into one is called compiling an index. Here we will use a simple index. Add the total amount of conflict on each of the variables. This gives a total score found in the last column. This score will be used as the nation's conflict score. Note that this assumes that all the kinds of conflict behavior are equal in display of conflict and that, for instance, a war ranks equally with a threat. In later exercises we will discuss in more detail the formation of scales and indices to take these kinds of problems into account.

Arrange the total conflict scores in rank order from the highest to lowest. Now we want to put them into the cells of a table. This means condensing the data, or putting it into smaller form. At each state of manipulation of this data, we both lose and gain something. We lose some of the information. In arranging a total conflict score we lost the fact that some nations had wars while others had only threats. We gain in ability to make statements about the data. We can now say one nation had more conflict behavior than another nation. To put them into cells in a table, we must lose still more information. Let us arbitrarily decide that we will have a three by three celled table. This means that the scores on conflict behavior have to be divided into three parts. Let us call them High Conflict, Medium Conflict and Low Conflict. Again being arbitrary, we notice that the highest conflict score is 23. Taking the next score, 24, we can divide it into three equal parts of 8. This means that any nation which scores from one through eight on conflict will be scored "Low Conflict," and any nation scoring from 9 through 16 will have "Medium Conflict," and any nation which scores from 17 through 24 will have "High Conflict." Placing the nations in their appropriate cells what does this yield?

High Conflict	Medium Conflict	High Conflict

But so far we only have three cells. To combine this with another variable, similar decisions have to be made. Take the scores on literacy from Table 2. Note that they range from 2.5 to 98.5. Divide them into three parts, High Literacy, Medium Literacy and Low Literacy.

High Literacy	Medium Literacy	Low Literacy

Now we are ready to form a table. Take each nation and put it in the appropriate cell of the table below. Tally the scores and a single number shows us whether nations which have high amounts of conflict behavior are also those nations which have a high literacy rate.

	High Conflict	Medium Conflict	Low Conflict
High Literacy			
Medium Literacy			
Low Literacy			
Total			

What does this table reveal? What do you think is the relationship which occurs here? Do you think that highly literate nations are more or less likely to exhibit conflict behavior? Do you think one causes the other?

Repeat the table for Conflict vs. GNP per Capita using Table 2 for the data. What kind of relationship is exhibited here?

In discussing this table we have been talking about a small group of nations. If we had selected these nations using some valid sampling technique, we could then make statements about all nations using these nations and their behavior as a basis for such statements. This is the usual goal of sample surveys, for example, where a sample is taken from a larger population, and efforts are made to make statements about that entire population (generalize to a population) from that sample. In international relations, one of the problems is that often we are not using samples. We use the entire population. When we discuss the world of nation-states, there are only about 130 (plus or minus a few nations) and it is relatively easy to use all of them in making statements. In sample surveys of national populations, on the other hand, generalizations about 200,000,000 Americans were made from only 480 cases.

Often we would like to assess the probability of an occurrence. If we have taken a sample, we can estimate the extent to which the sample is like the population by assessing the sampling error, which gives us a probability statement. When statisticians talk about "statistically significant differences" they simply mean that the result that occurred was not due to sampling error to such and such a probability level. For instance, they might say that there was only a .05 probability that a sample would contain over 50% men and 50% women from a population which was evenly divided between the two sexes.

Where we use survey data, in foreign policy surveys, image surveys, etc., this kind of information will often be quite useful to us. Where our statements are about the entire population, like nation-states, regions, etc., probability statements cannot be successfully used.

However, in the tables we constructed, we do have a situation where two variables are plotted against one another. They can be said to vary together or are correlated together if there is a relationship. As the value of one variable increases the other will also increase. If there is a perfect correlation, a graph of the variables plotted would have a straight line. All of the variable's points would fall on the line. If there were a perfect correlation, then one variable could be predicted from the other. Let us suppose there were a perfect correlation between Anti-Foreign Demonstrations and the number of policemen in a nation. Then we could say that if a nation had more policemen than another nation it would also have more anti-foreign demonstrations and we could predict the exact number each should have. Obviously, such perfect correlations are very rare. But, we can measure the departure of a relationship from the perfect correlation line. The amount of this departure allows us to say how strong a relationship we have found. If the departure from perfect correlation is only slight, then the strength of the relationship is high. If the departure is great, the strength of the relationship is less. This departure is called the degree of dispersion around the straight line. Measures of association and correlation coefficients measure the degree of dispersion.

There are a large number of these coefficients. The most commonly used in the social science today is the "r" (Pearson's Product-Moment Correlation Coefficient). Each correlation coefficient has a certain number of assumptions about the nature of the data which must be met in order to use that particular coefficient. The "r" demands that the data be in the form of continuous scales, which we don't have in this case. We do, however, have ranked scales or a rank ordering. One coefficient which uses rank order scales is the tau beta (Kendall's tau beta). We will try it on the data we have here. Like many correlation coefficients the Kendall's tau beta varies between -1 and +1. At 0 no relationship exists.

Optional Computation:

1. Arrange the two scales in descending order with the highest nation's score first and its score on the second variable next to it:

	Scale 1	Scale 2
Angola	15	8
Burma	14	7
China	13	10
Syria	12	6
Germany	11	5

2. Put next to these the order in their respective scales:

	Scale 1	Scale 2
Angola	1	2
Burma	2	3
China	3	1
Syria	4	4
Germany	5	5

3. If there is a perfect scale, both sets will correspond exactly. The 1's will be first, followed by a pair of 2's, etc. Here there isn't perfect correspondence except in the cases of Syria and Germany, which are 4-4 and 5-5 respectively.

4. For each pair ordered correctly, put a +1 and for each pair ordered incorrectly put a -1.

	Scale 1	Scale 2	
Angola	1	2	-1
Burma	2	3	-1
China	3	1	-1
Syria	4	4	+1
Germany	5	5	+1

5. Now for each pair of cases (nations) we need to compute a sum. Taking them successively: (Angola + Burma) + (Angola + China) + (Angola + Syria) + (Angola + Germany) + (Burma + China) + (Burma + Syria) + (Burma + Germany) + (China + Syria) + (China + Germany) + (Syria + Germany) =

6. This Statistic is called an "S". We need now to divide S by the maximum possible value that it could have, which is N(N-1)/2, where N is the number of cases we have to analyze. Our illustration uses five cases or five nation-states. Thus:

$$N=5 \qquad \frac{N(N-1)}{2} = \frac{5(5-1)}{2} = \frac{5(4)}{2} = \frac{20}{2} = 10$$

$$S=-4 \qquad \frac{S}{N(N-1)/2} = \frac{-4}{10} = -.40$$

7. Now we have a tau beta composed of $\frac{S}{\frac{1}{2}N(N-1)}$

If there were perfect disagreement between the two scales, the result would be -1.0. It there were a perfect agreement it would be +1.0. If it were 0 no relationship would exist.

8. Occasionally you will have tied rankings. This occurs in the scale when two or more cases have the same rank. Whenever there is a tie, the members of that tie contribute nothing to the S. Thus, they can be eliminated from the computations. But, if they are eliminated from the statistic, the denominator must be adjusted. The formula for this is slightly complex. Let A = the first scale and B = the second scale. Then ½ the number of tied variables in A times the number of ties minus one must be subtracted from the denominator, ½N(N-1).

Thus: ½N(N-1) minus ½ ties (ties minus 1) for scale A.

The same thing must be done for the second scale:

½N(N-1) minus ½ ties (ties minus 1) in scale B.

This means the final formula for computing a tau beta is:

$$\frac{S}{\sqrt{\left[\tfrac{1}{2}N(N-1) - \text{Correction for ties in first scale}\right]}\ \sqrt{\left[\tfrac{1}{2}N(N-1) - \text{Correction for ties in second scale}\right]}}$$

A Note of Caution:

There are many cases where it would be nice to generalize about the relationship between two variables. We could say that one variable causes another or that one variable is always correlated with another. International relations is extremely complex. As we deal with variables which are not individualized, it is easy to fall into the trap of saying that correlations occur where they may not for various reasons. This is called an "ecological fallacy." The most common example of this is the case of a perfect correlation between the high cost of insurance and the number of police and firemen in a district. The higher the number of officials the greater the cost of insurance. Does the hiring of more policemen cause insurance rates to go up? Not necessarily. In this case there is an intervening variable which explains both of these two variables. More officials are hired when they are needed to control more fires or more crime. Insurance rates go up in areas where there is a high incidence of both fires and crime. In a sense we have been doing the same thing when we said that a high GNP per capita means that there will be a high amount of conflict behavior. The nations with high GNP per capita are also the nations who are engaged in most of the international activity and thus are more likely to engage in all kinds of behavior, including conflict behavior. This and other intervening variables can complicate the relationships we find between variables.

Table 1. Foreign Conflict Behavior - 1955-57

Abstracted from R. Rummel, Table 19 "Foreign Conflict Behavior Transformed Data on Anti-Foreign Demonstrations, Negative Sanctions, Protests, Severance Diplomatic Relations, Expulsion or Recall of Ambassadors, Expulsion or Recall of Lesser Officials, and Threats, 1955-1957. Means and Standard Deviation

	Anti For Demo	Neg Sancts	Protests	Sev Dipl Rel	Threats	War	Troop move	Mobilize	Total
Argentina	4	-	-	-	-	-	-	-	4
Czechoslo.	-	-	3	-	-	-	-	-	3
Egypt	5	2	3	2	5	1	1	1	20
France	4	3	4	-	2	1	1	1	16
Greece	3	1	2	-	-	-	-	-	6
India	5	1	3	1	2	-	1	-	13
Israel	2	-	4	-	4	1	-	1	12
Japan	4	-	3	-	-	-	-	-	7
Pakistan	2	1	4	2	2	-	-	-	11
Peru	-	-	-	1	-	-	-	-	1
Poland	4	-	3	-	1	-	-	1	9
Syria	2	2	3	1	4	-	2	2	16
Thailand	-	-	2	-	-	-	-	-	2
Turkey	2	-	2	-	2	-	1	-	7
USSR	3	-	5	-	5	1	3	-	17
UK	1	1	5	-	4	1	2	1	15
USA	5	4	6	-	5	-	3	-	23
Yemen	-	-	2	-	1	1	-	-	4

Table 2. Indicators of Political and Economic Variables

(Abstracted from Raw Data Tables Presented by Russett, et. al.)

Nation	Total Pop. in Millions	GNP/Cap. in U.S. $$	Literacy % Pop. Over 15	% Expend. on Defense, as % of GNP
Argentina	20	$ 490	86.4	.8
Czechoslovakia	14	680	97.5	2.5
Egypt	27	142	19.9	.7
France	46	943	96.4	3.6
Greece	8	340	80.0	2.5
India	442	73	19.9	.2
Israel	2	726	93.7	4.8
Japan	94	306	98.0	.4
Pakistan	95	70	13.0	.4
Peru	11	179	47.5	.2
Poland	30	475	95.0	1.7
Syria	5	173	27.5	1.7
Thailand	27	96	68.0	.9
Turkey	29	220	39.0	3.1
USSR	218	600	95.0	3.0
UK	53	1189	98.5	1.9
USA	183	2577	98.0	2.4
Yemen	--	50	2.5	.7

Exercise 4

Images of Other Nations

Assigned Readings:

Charles Backstrom and Gerald Hursh, Survey Research (Northwestern University Press, 1963), Chapters 1-4.
Survey Research Center, A Manual for Interviewers (1960 revised).
Survey Research Center, A Manual for Coders.
Claire Sellitz, et al., Research Methods in Social Relations (Holt, 1960).
Robert Kahn and Charles Cannell, The Dynamics of Interviewing (Wiley, 1957).
Mildred Parten, Surveys, Polls and Samples
Leon Festinger and Daniel Katz, Research Methods in the Behavioral Sciences (Dryden Press, 1953), Chapters 1 and 5.

1. Surveying

One important area of investigation in international relations is international images. Each individual usually carries with him a set of mental pictures of other nations and their inhabitants called images. Each image a person has is the product of a complex set of interactions - the people he has met, places he's seen, movies, TV, books, newspapers and magazines, conversations with friends and many other things.

Pushed to an extreme, and held quite rigidly and inflexibly these images can become caricatures of stereotypes. You have probably heard stereotypes as cliches:

"All Chinese look alike, you can't tell them apart."
"The Germans are so hard-working and industrious."
"Africans believe in witch doctors and cannibalism."

Notice several things about these kinds of comments. All the people of a nation or area are lumped together, neglecting the fact that people have individual differences. Thus, the lazy German and the African Christian are over-looked. Most of these comments are oversimplified, or deal with simple characteristics like physical traits ("Italians are short, dark people"), or general personality traits ("Italians are happy-go-lucky").

This becomes an important area for investigation because these images will form a basis for actions in the international arena, actions taken by ordinary citizens and national leaders. For instance, an American tourist may avoid a nation he carries a bad image of, or vote for a congressman he thinks shares his image of that nation. On a higher level, the images of a national decision-maker can affect his policies about these and other nations. So we would like to know what kinds of images people hold, how these images were formed, what causes them to change, etc.

One major way of finding out about such images is to ask people. A whole field - survey research - has sprung up to deal with the problems of selecting the questions to be asked and the people to whom the questions will be put. A survey means that certain people are selected for questioning. The total group of people questioned represents some whole unit (a population). For example, in the United States samples are taken to represent the entire population of voters to see how an election will go; economic surveys are taken of representatives of certain class or work groups to see whether they will purchase new products.

In international relations there are few surveys, and a paucity of good data. The few which do exist are worth noting and checking to see if your library subscribes to them. A number of nations have polling institutions which take surveys and publish the results usually in book form but occasionally on IBM cards. The majority of questions are economic but a few political issues are included. There are archives of polls at the Roper Center in William College, and the Inter-university Consortium for Political Research stored in Ann Arbor. A French organization publishes Sontage, and German and Italian polls are also available. Some new organizations like the Market Research Institute in Stockholm and Market Surveys in Dar es Salaam and Nairobi occasionally will attach politically-oriented questions to current surveys. One difficulty with political surveys in many underdeveloped areas is the sensitivity to outsiders, especially Americans, and the reluctance of citizens and officials to give any political information to anyone.

One group of people whose international images are of great interest are college students. Presumably this group incorporates the political and social leaders of the future and knowledge of their images should give us some cues for predictions. So we will take a small survey of college students to assess their international images.

2. Setting Up the Research

Some very basic questions must be answered as we start a survey. Can we cover all international images? Obviously not. Therefore, we must select some section of images to study. Select one of the following world areas to consider in your survey: (1) Latin America, (2) Communist China, (3) Soviet Union, (4) Africa (sub-Saharan), (5) Southeast Asia, (6) France, (7) West Germany, (8) Italy.

Your choice: ____

What you will attempt to find out, then, is what images college students have of this part of the world. To do this you will have to find out something about college students. Somehow you will want to determine the content of their images, and you will probably be interested in the sources or origins of their images. So your survey will have three parts: (1) information about the people surveyed, (2) information about their attitudes (images), (3) information about the sources of their attitudes.

Other basic considerations enter at this point. One major problem is cost. In a large national survey, costs would have to include interviewers, mimeographed questionnaires, analysis expenses, travel money, and many other things. For our small venture the major cost will be time and you will have to be your own researcher-interviewer, analyst, etc. How much time should you allot to an interview? How much time will a compilation of data take? How long will a college student tolerate being interviewed? These questions should help narrow the scope of the survey. Since the costs of national surveying are beyond our means, the survey must be limited to college students at this school. The pressures of college life suggest the average student has little time for answering questions, so a questionnaire should be kept short. Arbitrarily, we can suggest a maximum of twelve questions to keep the survey within manageable bounds. (Alternatively, two students can combine on a single survey.)

3. The Sample

Selecting precisely who should be questioned is a major undertaking for any survey. The first surveys consisted of a man standing on a street corner asking questions of everyone who passed. This meant if he stood near a supermarket corner, he encountered only housewives; if near an office complex, only white-collar workers. Since then procedures to ensure random samples have been developed. This means using a random number table (instructions are in the appendix) and a complete list of the group to be sampled. Recent samples have added stratification. This means that representatives of particular sub-groups are included in the sample. Even a random sample can have errors such as too many of one kind of person. If you were random sampling, you might find all women for instance, or all freshmen. Then you couldn't generalize your results to the school. We suggest stratifying to the extent of having an equal number of men and women and an equal representation of all classes. You may also want to have representatives from several other college subdivisions. The number of stratified characteristics included in the survey will determine the total number. Remember to keep it simple. The ideal size would be sixteen interviews which can be carried out within one week's time. Adding more characteristics would mean fewer persons in each sub-group. It is difficult to generalize to a sub-group represented by only one man. If you want to spend more time doing the survey or if several students combine to do one survey, then a larger number of persons can be interviewed.

You can be very scientific and get lists of each sub-group, take random samples, hunt down these people and interview them. Or alternatively, you can randomize in less scientific ways for this survey, recognizing the limitations of your sampling procedures. If you have a large dining hall, select randomly-selected individuals among the eaters, use a random selection in housing units, or randomly select among the library or student union inhabitants or other places frequented by the entire student body. Again, keep the number of interviews small.

4. Writing the Questionnaire

Earlier we said this survey would have three parts: (1) information about the people surveyed, (2) information about their attitudes toward one world area, (3) information about the sources of their attitudes. These three elements form a basis for the content of the questionnaire.

Consider several things. Questions have to be administered verbally. Therefore, you must have questions which are easily understood. Use clear English. Keep the questions short and uninvolved. Avoid big, confusing words. Avoid terms which may be technical, unfamiliar, or have ambiguous meanings. Some questions can be loaded (emotionally-charged or biased) toward a particular response. For instance, "You don't like deGaulle, do you?" Even "Do you like deGaulle? contains some loading. It would be better to ask "What do you think about deGaulle?" Some questions can have emotional biases. Others can be embarrassing. Note that the way you phrase questions will often determine the answers.

You must decide how each question should be structured. For instance, you can ask a person how he feels about Cuba. The answer could be short or long. This open-ended question lets the respondent say anything in response. Often, interesting ideas emerge.

A structured question offers the respondent several responses and he is asked to choose one. Here each answer is considered beforehand and the respondent is limited in what he can say. Care must be taken to accurately represent the range of possible opinions without over-extending the question. Here are illustrations of a well-structured question and a poor one:

A Well-Structured Question

1. How do you feel about Cuba?
    - a. Very favorable
    - b. Favorable
    - c. Neutral
    - d. Unfavorable
    - e. Very unfavorable
    - f. No response

A Poorly-Structured Question

2. How do you feel about Cuba?
    - a. Hostile
    - b. Favorable
    - c. Medium
    - d. Like Castro
    - e. Against Communists
    - f. Good cigars
    - g. Bad place
    - h. Hate

In the first example all the possible responses tap the same element, favorability toward something. In the second, different elements are mixed in the question. Thus, several different kinds of things are asked. Hostility is equated with politics. Remember to include the "no response" category for those who can't or won't answer.

Structured questions have the advantage of being easier to tally after the survey because they are precoded but they often limit interesting possible responses. In your survey, include at least one example of an unstructured question and a structured one.

The first point of information we want is questions about the people surveyed. These are the socio-economic characteristics, the independent variables spoken about earlier. We want to know what kinds of people have certain kinds of international images. Some of the most commonly used SES traits include: social class, age, sex, religion, income, education, etc. It is difficult to get an accurate picture of social class without several complex questions. We suggest it not be attempted here. Since everyone here is in college, education is not relevant. Instead of age use college year: freshman, sophomore, etc. Sex is an important second SES characteristic for your survey. Since you are limited to twelve total questions, no more than three or four should be used in this first group. Class and Sex are two. For others choose among: (1) religion, (2) race, (3) college major or division, (4) travel abroad.

The second part concerns the images of the area you are studying. Here you will have to limit your study still further. Again there are a maximum of four or five questions allotted. Only a few attitudes can be examined. You may want to examine images of the whole area, specific countries in the area, or specific policies of the governments involved. These questions are attitude questions about feelings and sentiments. Here you should ask one open-ended question, "What do you think about...?"

The last part includes questions on where the people obtained their images. Four or five questions can be allotted for this part. One aspect is the amount of information the respondent has about this part of the world. Ask them to name an official of one government in your area. Ask about particular policies or geographical considerations. One fascinating question is to ask the respondent to draw a map of the area putting in such detail as he may consider significant. Other possible questions include the respondent's reading habits, contact with foreign national, etc. There are many possibilities from which to select.

5. Taking the Interviews

Before you start out, test your questionnaire. Ask one or two friends the questions and have them answer as if they were respondents. Then ask them what they found ambiguous or difficult. If necessary, adjust your questions. A full-scale national survey at this stage would ask a random sample of the population to be surveyed the questions just to test the questionnaire. This stage is called the pre-test and can be as detailed as a full real run, with analysis procedures, etc.

Now you know whom to ask the questions of and what questions to ask. What remains is simply to go out into the field and interview. Several pointers may help the actual interviews go smoothly.

Always be polite. You are bound to get setbacks. Many individuals resent surveys as intrusions of their privacy. A number of people will refuse to answer or will regard the interview as a joke.

Introduce yourself and explain your purpose. Be neutral. Don't express any opinions in the introduction. Guarantee the respondents anonymity. Tell them the survey will be used only for class and their name will not be used.

A good interviewer tries not to put words into the respondents' mouths. It is an art to lead the respondent to reply coherently to a question, assessing whether they know what the question means, and whether they are giving the response they think they are giving. Many respondents say something and mean something else. Many times they misunderstand the questions. Psychologists tell us it is almost instinctive to want to please someone and respondents will try to give the answers you want to hear. Any comments from you will be taken as directions for their answers. You even have to be careful with "um's."

Let the respondent think, but if he hesitates too long prod him gently. Try to keep the time of the interview within bounds. A tired respondent (or a bored one) will not give an accurate interview.

Record the answers carefully at once, but try not to write so much that the respondent is sitting and fidgeting the whole time. The careful placement of open-ended questions after precoded ones will give you more time. For coding, write out the questions on each sheet (allow one separate sheet for each individual), and when he answers you can simply check a box or circle a number.

Exercise 5

Images of Other Nations
Survey Analysis

There are many ways to attack the analysis of a survey. In some respects you have already made some of the decisions for analysis by drawing up your research questions. You wanted to know: (1) what images college students on your campus hold of one area of the world, (2) how those images were formed, or on how much information those images are based, and (3) who in particular hold what images.

The first step is coding the responses. Some of the questions have been pre-coded. For others you must decide on codes. Read over the total responses. Do some patterns emerge? Are the respondents talking about similar things? From this information you can build codes. For some questions you will have to take the responses, read them through carefully and decide on coding for tabulation.

When all the questions have been coded you are ready to begin the heart of the analysis, the tallying process. If you were doing a major survey on a national scale, it would be difficult to tally from the questionnaires which have been coded. The solution is usually to code in the form of numbers which can then be transferred to IBM cards with one card for each respondent and one column for each coded response (recall that one question can provide more than one response). Then with a large number of cards the data is usually transferred to magnetic tape for storage. Here with only sixteen respondents you can tally by hand.

Several analysis choices are open to you. With a limited number of responses we will be content with cross-tabs (cross-tabulations) of the type described in the previous exercises. First, you will want to make an absolute tally. For each question count how many of each response is present and record these figures.

How many respondents have positive attitudes toward this area?

________________________________ (give percentages also.)

How many have negative attitudes? ____________________________________.

What can you learn about the sample from the absolute tallies?

____

____

____

Cross-Tabulations

First form tables of two variables drawn from the questions. Some interesting results should emerge.

1. Match sex with attitude:

2. Match college year with attitude:

3. Match another socio-economic characteristic with attitude:

4. Match information about the area with attitude toward that area:

As you try to compute these tables it should become apparent that working with the variables as you have originally coded them will mean many cells in the tables with few numbers in each cell. Consequently, any relationship you find will be quite weak. What is needed, then, is a grouping of the variables. Where you have an attitude divided into five or more categories see if you can group them into two or three cells. What do you lose when you do this?

____

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Now try more tables, using two variables. Work space is provided below.

Now select four or five of the best tables. Present them below and describe the relationship in each table. What do these tables tell us about our original questions of international imagery?

An important further step you can now make is the construction of tables using three variables, one of which is a "control." Answer the following questions after constructing the appropriate tables.

1. Do informed women have more favorable attitudes than informed men?

2. Do upperclassmen with favorable attitudes travel abroad more widely or take more international courses or read more about international events than lowerclassmen with similar favorable attitudes?

3. Control, using another socio-economic variable, the relationship between attitude and information.

4. Try making up your own questions using a controlled relationship.

5. Using some of the tables you have constructed, describe the relationships you have found and their relation to the research questions.

From the series of tables you have computed what can you conclude about attitudes toward that area of the world as your campus views it?

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If given the opportunity, how would you restate the original research questions?

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What can you say about the research sample? Was it a good one? Given what you now know, how would you change it if you were planning similar future research?

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How did your questionnaire work out? Were there any questions which should be changed for further tests? If you could add to the questionnaire, what one question seems most promising for fruitful results?

Did you have problems interviewing? How would you restructure the interview situation?

If you were given the possibility of a follow-up study, what would be important to include?

General comments on the interview situation, if any.

Optional:

To find out the significance of the relationships in the tables you have constructed, called contingency tables, you can use a chi square test. Consult a write-up of the test in a statistical handbook. Note that this test simply tells you whether or not you have found a relationship, not how strong this relationship is. It is a conservative test, which means that you may reject a relationship between the variables which is not very strong.

Exercise 6

Measuring Political Attitudes
Content Analysis

Assigned Readings:

Philip J. Stone, et al., The General Inquirer (MIT Press, 1966), Chapters 1, 2, and 3.
Robert C. North, et al., Content Analysis (Northwestern University Press, 1963). Chapters 2 and 3.

Many of the events or actions in international relations are concerned with "crises." In recent years the world has witnessed several Berlin crises, a Congo crisis, a Cuban missile crisis, a number of Middle Eastern crises, and others. The crisis is generally a provocative action, planned or accidental, by one nation-state toward another. What is called provocative by a recipient varies considerably and we won't answer that question at this time. When the possibility of large-scale violence appears, a crisis demands the attention of the world's statesmen. Each nation must quickly and accurately assess the moods and views first of their own citizens, second of the immediate participants in the crisis, third of the "enemies" of their country, and fourth of the other nations of the world. This is a formidable task. Then each state makes a policy choice, setting forth alternative solutions. For the duration of the crisis, additional policy choices must be made and implemented.

Right now we are not as interested in the kinds of policy choices as the assessment process which develops them and the results of various choices. From your knowledge of the complexity of surveys it should be apparent that the speed of a crisis precludes a survey of even a citizen population. There just isn't time. Often policies must be developed in a few hours. Where can the decision-makers get the information on which they base choices of policies?

The international images policy-makers hold of other nation-states is a good starting point. Beyond this, there are many printed and oral statements made about a given crisis in the mass media. Assessment through careful reading and analysis of documents and mass media reports give many statesmen cues about the nature of attitudes during a crisis. We would like to make this kind of assessment in a more objective and systematic way - by using content analysis. At the same time, we want to examine content analysis as one other tool of analysis.

Content analysis may be defined as a research technique which attempts to identify, systematically and objectively, internal dimensions or components within a body of written or spoken materials. Thus, content analysis deals mainly with words and pictures. But, as there are many ways of dealing with words, there are many kinds of content analysis. For ease in dealing with them, we will divide content analysis into: (1) Manifest Content Analysis, and (2) Latent Content Analysis.

Manifest content analysis is any kind of analysis which deals with the obvious characteristics of the material. It makes no attempt to "second-guess" the intentions of the writer or the philosophies, beliefs, etc. There are a number of ways this type of content analysis can be operationalized:

1. Spatial relations - a measure of the amount of space or time allotted to a subject. For example, you might measure the amount of total newspaper space devoted to a crisis over time by taking a ruler and plotting column inches. There is an assumption that the more space allotted, the more significant the subject. Other spatial measures include: the size of type used in the headlines, the number of subheadings, the number of editorials about the subject, and the location of a story in the newspaper. For example, was a news story placed on the first page in the upper right-hand corner (the most important or prestigious position), or where?

2. Word count - a measure of the number of times a particular word or phrase occurs. This is the most familiar type of content analysis. Because it has been the most commonly used, it is in turn divided into a number of subdivisions:

   a. Presence-absence - the finding or failure to find a particular term in text. Studying wartime propaganda, Alexander George deduced the eventual appearance of the buzz bombs from the inclusion in Nazi propaganda in the midst of typical rhetoric of a reference to a new horrible weapon.

   b. Word counting - a numerical count of all the words in the analyzed materials. This involves the assumption that the more a word occurs, the more significant it is. For example, references about the importance of nuclear weapons in Communist China mass media rose significantly after the Chinese apparently decided the possession of atomic weapons was important and therefore committed themselves to acquiring them.

   c. Word categories - a numerical count of a number of predetermined words categorized in lists (usually with titles). One new way to do this is by computer. Before starting analysis, a list of words is divided into categories and this list is matched against the material studied by the computer. The result is a total of the number of times each category appears. Once again, there is an assumption that an important item will appear many times.

Latent content analysis deals with the hidden meanings - reading between the lines of propaganda, news releases or other material to be analyzed. It is not a psychoanalysis of the writer but an attempt to assess general views, intentions and considerations of larger units like the nation-state's collected decision-makers. The major method now in use to operationalize latent content analysis is contextual analysis. An assumption is made that the context in which significant items are located is as significant as the items themselves. Thus an effort is made to determine how words are put together and what they are associated with. A typical finding is the one that non-Western leaders use the word "imperialism" in a context of extreme hostility and other unfavorable terminology.

Each of the types of analysis suggested above will be tried, in an effort to assess the attitudes covered in the mass media about a 1967 crisis, the Arab-Israeli War. The war covered the period from May 22, 1967 to June 13, 1967. These will be your starting and ending points. The data to be used consists of editorials and articles taken from the New York Times (omit the Sunday Times). The time period covers the initiation of hostilities to the end of large-scale hostilities.

Start by going through the newspapers for the time period involved with a ruler and compute daily ratios of the amount of space devoted to the crisis. This ratio is an expression of the amount of space devoted to the crisis divided by the total amount of space available. (Hint: the total amount of space can be measured in terms of column inches per page multiplied by the number of pages.)

Does this ratio increase or decrease over time and how? Graph it.

Raw measurements for each of the 20 days:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Graph:

Ratio or percent of space devoted to the crisis for each of the 20 days:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Graph:

Interpret the pattern that emerges. How does the crisis escalate, fluctuate or abate over time?

Discover the prominence of the stories in the news. Where do they appear? Page One? Page two or the middle? At the end of the paper? Construct your own method of computing an index that expresses in a quantitative fashion the positional setting (the importance of the stories about the crisis). Note that this can include position, headlines or anything you decide upon.

Describe your findings? What kinds of articles are more significant than others? What does this tell you about the crisis?

Next make up a list of words to fit the categories shown below. Because your time will be very limited, we suggest small categories, of between 15 and 20 words. No more than twenty words will be allowed. Consult a dictionary or Thesaurus for assistance. A category's words are related in some way to each other but do not necessarily mean the same thing. For example, a category labelled DISCRIMINATION might have both "biased" and "minority" in it but they mean different things. Here you are given four categories:

THREAT	AGGRESSION	FAVORABLE	UNFAVORABLE
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________
____________	____________	____________	____________

Count the number of times words in each of your categories appear in each days' editorials:

Days

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Threat																				
Agression																				
Unfavorable																				
Favorable																				

You will note that the second variable in our analysis is time. We have been concerned with the changes which occur over time. It is interesting that even in such a short period large shifts occur. Describe these changes briefly for each of the four variables above.

Evaluate your categories. Did you find words in the editorials which should have been in your categories? Did you have words in the categories which were used by the newspaper? What would you do in a future study?

When considering the latent meanings in written material it is important to select an appropriate unit of analysis. Many of your results will depend on this choice. Until now you have been using the total amount of content per day as one unit for analysis and this has been compared over time. There were other choices which you could have made: a single word, a sentence or a paragraph, editorial, etc. Each of these might be a fitting unit of analysis.

For context analysis of the editorials you found in the New York Times, two units of analysis are suggested: the sentence and the whole editorial. Rather than a strict quantitative analysis, we will be content with some intuitive judgments based on the counts you did in the last section.

In the editorials match up the categories you have been using: THREAT, AGGRESSION, FAVORABLE, AND UNFAVORABLE with the names of some of the countries involved: Israel, United Arab Republic (or Egypt), United States, and Soviet Union. Try to look at the co-occurrence of a category with a country 1) in a sentence, 2) in the editorial. Answer the following questions, being specific about the words used.

1. What is the New York Times' FAVORABILITY toward Israel? Does it change over time?

2. Does the New York Times link AGGRESSION with Egypt? In a sentence or a paragraph?

3. Does the New York Times imply any THREAT toward the Soviet Union?

4. Does the New York Times ever react UNFAVORABLY toward United States policies?

OPTIONAL WORK: In different news media there can be very different opinions expressed. In the United States for instance, a wide range of political opinion journals hold forth. Compare the findings in any one of the items above with a comparable time period in your local newspaper. What differences can you find? What does this tell you about the local news? You might also make similar comparisons with other magazines of known political persuasions of all sides.

Exercise 7

Decision-Making
Simulation

Assigned Readings:

Harold Guetzkow *et al.*, *Simulation in International Relations* (Prentice Hall, 1959) selections.

Ithiel Pool, Abelson & Popkin, *Candidates, Issues and Strategies* (MIT Press, 1968) selections.

It is now about time to concentrate on the actions of international relations and the people who develop these actions. We have been considering the influences on the people who make policy decisions, the actions of the international arena. Now we want to focus on the kinds of decisions which are possible and on the process by which policy alternatives are evaluated and selected.

Consider first, the decision-makers. When a crisis occurs each nation must make a policy decision. This decision is taken at one of the governmental levels depending on its seriousness. For instance, if a demonstration occurs at an embassy, the ambassador will usually decide whether or not he will receive demonstration leaders and petitions. If a foreign government requests trade agreements, the decision will customarily be made at the ministry of foreign affairs (U.S. State Department), usually by officials who watch and study that part of the world. (Note: this depends of course on the size of the nation and the extent of its bureaucratic arrangements). If the agreements are important enough, say a disarmament treaty, the foreign minister himself (U.S. Secretary of State) will make the final decisions. But, when a crisis occurs with potential for large scale hostilities, an outbreak of war, the very top levels of the decision-making apparatus will become involved. Often the head of state will take responsibility for policy choices.

The range and variety of policy choices is extensive. Obvious choices are those of declaring war, or reinforcing an ally in danger of aggression. Not as obvious are the choices of diplomatic protests, threats, embargoes and offers of trade and aid. Many national leaders especially in the initial stages of a crisis, adopt a "wait and see" policy.

You will have ample opportunities to explore varied policies using a technique called simulation. A simulation takes a model, in this case a model of the international process, and works it through to a conclusion. The model is a replica of certain portions of the international scene. Our model will be a very simple one incorporating a few basic elements. Your studies have probably already convinced you of the complexity introduced by the large number of variables in international affairs. In a simulation you can observe the complexities introduced by the *interaction* of such variables.

In a simulation, surrogates or representatives are used to replicate the elements of the real world. A computer can be used to rapidly process many surrogates through many interactions. Here, human beings, you, will be the surrogates. This involves role-playing. You will take roles as decision-makers in the international scene. As such you will be doing research as a participant-observer.

One very important element in a simulation is time. A simulation allows us to compress time into smaller units. A number of days will be condensed into a series of time periods. The duration of a period representing one day will be decided by the instructor. Allowing a simulation of five or six days to run in a single afternoon permits you to see the completion of action and may give us the ability to predict what would occur in what given circumstances.

At this point a variety of selections must be made by the instructor. Choice will be made of which scenario to be used. Teams must be selected for each scenario depending on the size of the class. Each team should have at least two persons. The minimum teams per game is three. Note that a single extra student can be the United Nations Secretary-General which adds a richer dimension to any simulation.

Selection of Roles: Each student must take one role in one country in the simulation selected. There are four ways in which such matching of man with role can occur:

1. random selection of students and roles can occur with the use of the random number tables.
2. students can select their own roles.
3. students can be arbitrarily assigned roles.
4. students can be matched to roles in terms of some characteristic like personality traits or some other quality.

Consider the advantages for study of each of the methods of role-selection. After your instructor has determined which method shall be used, see that each student has a role and that a complete list of who has what role is made available. A page is included here for that purpose. If addresses and phone numbers are needed they should be supplied.

Page for recording who has which roles, phones, addresses etc.

Time considerations must also be determined by the instructor. A single class period of one hour is quite short for the running of such simulations so if only periods of one hour are available, perhaps two such classes can be used. Suggested time sequences are:

1. class periods of total two hours divided into two days of one-half hour each.

2. total two hours time divided into four days of fifteen minutes each.

3. total three hours divided into three days of 45 minutes each.

4. total four hours (two class periods on different days, or using a single day two hours in the morning and two in the afternoon) divided into four or six simulated days.

5. another possibility is using the class period as a starting point and having the simulation run through the next day until the following class period with stipulations made for days.

6. an extended period of time may be evenings each day for five days, or through the day each day for five days.

Each of these time sequences has been used with some success at a variety of schools. Where there is a commuting school the simulation should be during the day and one campus. A school with dormitories often uses a head of state's room as the national capitol. Smaller schools have great success playing the simulation over several days, because the players make frequent contacts. Larger schools have good simulations with extended periods of concentrated play. In any event, time should be left for evaluation, and consideration of the activity.

Each simulation is listed with its title and the number of teams possible in the order of their importance to the game. The members of each team are

1. The Head of State
2. The Foreign Minister
3. The Minister of the Interior

Duties of each team member are as follows. The head of state is the leader of his country. As such in this simulation it will be his responsibility to make all the decisions. He must decide on all significant and insignificant questions in this simulation.

The foreign minister is the major contact between his country and other nations. He is responsible for making all communications and talking with all other foreign ministers. He then reports back to the head of state who decides on the eventual course of action. The head of state does not communicate with other nations except at a summit conference.

The minister of the interior is responsible for the internal conditions of the nation. He must sign each decision made by the head of state. He must look out for the welfare of the nation. He is aware of public opinion, knows the national resources, and capabilities and knows national production and strengths. These conditions are reflected in the advice he gives the head of state.

In the case of small classes, the role of the interior minister can be carried out by the head of state and foreign minister (or his role can be randomly assigned to some nations by the referee). The loss of the interior minister means the loss of a certain number of variables in the simulation.

The possible simulations are (teams listed in order of importance).

I. Crisis in Europe

Teams: 1. Soviet Union 2. France 3. West Germany
4. Great Britain 5. United States 6. East Germany
Others: 7. Poland 8. Italy 9. Austria 10. Czechoslovakia

II. Indian Imbroglio

Teams: 1. People's Republic of China (Red China) 2. India 3. Pakistan

Others: 4. Soviet Union 5. United States 6. Japan

III. Latin American Incident

Teams: 1. Argentina 2. Chile 3. United States

Others: 4. Cuba 5. Soviet Union 6. Uruguay 7. Brazil 8. ed China

IV. An African Affair

Teams: 1. Mozambique 2. Tanzania 3. Portugal

Others: 4. Great Britain 5. United States 6. Soviet Union
7. Red China

Rules of Play:

All policy decisions shall be in written form. One policy decisio (move) shall be submitted to the referee during each simulated "day." The instructor shall act as referee. The referee will accept moves. Th referee shall invalidate moves with improper signatures. The head of state will sign each move. The move will be submitted by the foreign minister The move will be initialed by the interior minister if any. The refere shall invalidate "obviously unrealistic" moves. For example, if Canada moves to drop a nuclear bomb on New Zealand it would be invalidated because Canada does not now possess the capacity to build a bomb by the time of the game nor does it have the delivery capability to New Zealand who happens to be an ally. The conditions of the real world shall pertain. This means all the nations have the resources and personnel that they have in the real world. If any conflict in understanding the rules occurs the referee will make an arbitrary decision. The referee shall publish a news sheet which will consist of all public notices which can be submitted by the various nations plus other news items which come to the referee's attention. Source of news will not be identified unless specified within the release. One news sheet will be published for each simulated day. News sheets will be limited in length unless assistance is provided with typing. (Note: keeping written records of conferences and communications with other nations will help your later evaluations.)

Before Play Can Begin:

The various players must learn something about their roles and their nation. Hence this week's assignment will consist of a trip to the library and the drawing up of a position paper which answers the following questions:

1. Who are the major national leaders: Who are the main figures within the country? How do they behave in their roles?

2. What treaties figure importantly in national foreign policy? What is current national policy toward these treaties?

3. What positions does the nation take on the Cold War?

4. How does your country feel about the United Nations?

5. Is your nation for or against disarmament? arms control? economic aid?

____

____

____

____

6. What is the most important event of recent years on the international scene in which your country played a part (as perceived by your nation)?

____

____

____

____

7. What is the biggest domestic political event of the last twelve months?

____

____

____

____

8. What is the focus of national economics? Of national aspirations or goals?

____

____

____

____

9. What in general is national policy toward each of the other nations within your simulation?

____

____

____

To locate this information you might try to find foreign students from this area of the world, check the library for recent newspapers and magazines from these nations, look at the Digest of Current Events, and the New York Times index for recent occurrences in the international scene. Finally, there are books and articles on this part of the world, and professors who teach about it.

Finally, formulate some tentative policies. (N.B. Keep these secret. They should take the form "...If Canada drops the bomb, we will retaliate with..."Keep these in the national archives for checking later during the evaluation.)

Next week you will read an initial press release which will start play. It contains the crisis you must solve. Checking it ahead of time will negate the effectiveness of the play so steps should be taken to avoid this.

Exercise 8

Decision-Making
Simulation Run

Assigned Reading:

J. David Singer, Quantitative International Politics (Free Press, 1968), pp. 123-158.

Richard C. Snyder, H. W. Bruck and Burton Sapin, "The Decision-Making Approach to the Study of International Politics," in James N. Rosenau, International Politics and Foreign Policy (New York: Free Press), 1961 edition - pp. 186-192; 1969 edition - pp. 199-206.

Read *after* the simulation run is completed.

On the following pages are the press releases for the four simulations arranged in the preceeding exercise. Following the reading of the release, you will proceed to make moves, observing the rules outlined in the last exercise.

After the simulation has been completed, you will want to discuss it within your own team and within the class, describing not only what happened but how and why. Then answer the questions in the exercise to help you evaluate the simulation, not only as to what occurred but as to its effectiveness as a research tool.

PRESS RELEASE: I. Crisis in Europe

Today Western Europe was once again plunged into turmoil by the information that West Germany has on its own developed nuclear capability. The Bonn government has announced that it will go ahead with plans for its bomb, which is admittedly small and inferior to the high-yield bombs of the Soviet Union and the United States. The Germans have announced that they took this step in secret because they wanted to use the bomb to reunite their divided nation and regain their old capital of Berlin.

The Soviet Union has denounced their capability as a capitalist trick, done with the full knowledge of NATO, and called for immediate action of the Warsaw Pact.

The United States has professed ignorance of this development.

France has denounced the German move and is trying to mediate the crisis, threatening Germany with expulsion from the Common Market.

PRESS RELEASE: II. Indian Imbroglio

India has created a nuclear weapon. The nation which has cried out often for peace says it took this move in order to secure its boundaries and regain the territories which have been ripped from its borders. Reaction in the world is one of shock and dismay.

Pakistan is denouncing India and has declared a state of emergency. Martial law went into effect there at 4 a.m. New York time. Pakistani leaders said they would fight to the last man if necessary to preserve their nation. They claim the bomb is only an Indian trick to recapture Kashmir.

The United States has no comment on this development at this time. Speculation exists that links France to the supply of minerals, materials and know-how which have made the bomb. It is widely known that technical assistance has been forthcoming from Japan. The Soviet Union also has no comment at this time.

Peking news has remained silent on the Indian development except for the customary denunciations of capitalist exploitations. However, news has reached New Delhi that border patrols and reinforcements for the Chinese army have started to appear near the Tibetan border.

PRESS RELEASE: III. Latin American Incident

Rebellion has broken out in Argentina! A small army is reputed marching on the capital, Buenos Aires, with the intention of overthrowing the government. The Argentine government has denounced the rebel forces and sent the Argentine army to do battle with these forces. The Argentine government claims the rebels are coming from the neighboring country of Chile which has permitted refugees from Argentina to have political asylum there, and to train and launch this invasion on Argentina. The premier of Argentina has said that the rebels must be wiped out even if national boundaries must be crossed to do this. Since Chile has violated our friendship, they deserve punishment he is reported to have said. Chile has disclaimed responsibility for the rebels and said that if any army force enters its territory it will be met by force.

Both sides, Argentina and Chile, have accused Castro and Cuba of instigating the rebellion. They claim that Castro and Soviet arms and supplies have kept the rebels going and that they wish to install a communist state in Argentina. Reports have said that the peasants have welcomed the rebels, believing they represent another appeal to "the shirtless ones." The rebels, having captured a radio station, were heard broadcasting appeals to the Soviet Union for assistance. The United States Senate was the scene of loud appeals for U.S. action. "No more Cubas" was the cry. The State Department had no comment.

2

PRESS RELEASE: IV. African Affair

A rebel force has invaded Mozambique with the intention of liberating the territory from Portuguese domination. The force entered across the Tanzanian-Mozambiquei border, where it has been training. Portugal denounced Tanzania for allowing this activity. Tanzania said it is committed to African freedom and if the rebels need help it would provide what it could to help them and call on its treaty commitments with Great Britain to provide still more aid. Portugal was rushing reinforcements into the territory and said that it didn't consider the boundary line sacred. It would root out the rebels once and for all even if it had to invade Tanzania to do so.

A number of African nations have said that if Tanzania is invaded they will come to her aid. They denounced Portugal and the United States. They claim Portugal is using American weapons to put down the rebellion. These weapons are part of the contribution the U.S. makes to NATO and Portugal is an ally of the U.S. under the NATO agreements. No solution to this situation seems apparent.

The Soviet Union has announced it supports this bid for freedom in Africa and has long denounced the imperialism of Portugal aided by the U.S.A. Red China is said to be supplying the rebels with weapons and materials. Tanzania has requested further aid from China.

Answer the following questions after completion of the simulation:

I. Questions about the simulation's operation.

1. Did you achieve your national objectives? ______________________

____

____

____

2. What nation did you communicate with the most? ________________

____

3. What nation did you communicate with the least? _______________

____

4. Draw a simple model showing the lines of communication from your nation to other nations in the simulation. Use some device to show the amount and intensity of these communications.

5. Evaluate intuitively the progress of the simulation in terms of the intensity of the crisis. Graph this and pinpoint the time when the solution became apparent to you.

6. If the simulation had been extended for another two days what would have happened?

7. Did you have any communications problems within your nation-state? (i.e., was information withheld from the head of state, from the interior minister? Did the foreign minister fail to bring something from a conference?)

II. Questions evaluating simulation.

1. List the variables used in this simulation model.

2. What was assumed in the simulation?

3. Since emphasis focused on communications patterns, how do you think these patterns could have been improved?

4. Does a news sheet serve a purpose in the simulation? If so, what?

5. What factors had to be taken into account in order to make a decision? Be specific.

6. What do you think are the limitations of simulation as a tool for research?

Now it is necessary to select five indicators of the existence of a community. You are urged to stick closely to those suggested by Deutsch and by the Jacob and Toscano book. All five can be transaction measures, or any of the other measures suggested. Each of these will be operationalized and data located for them. Note your choices below.

INDICATORS

1.

2.

3.

4.

5.

Now each of these has to be operationalized in terms of data. Suggest a way that each of these indicators can be measured. Then try to locate the measurements for these indicators. In cases where a series of measurements are suggested select only one of the indicators. For some of the measurements you will want to take them over time to locate a trend. We suggest that you use a recent three-year period. It is probably not possible to find last year's data in published form as yet, but perhaps the previous three-year period will be available. Perhaps you would like to try using five or ten-year intervals, picking measurements, for example, from 1950-1955-1960, or from 1948-1958-1968.

OPERATIONALIZATION ON INDICATORS

1.

2.

3.

4.

5.

Years of measurement: ______________________________

Exercise 9

Political Community Formation
Aggregate Data

Assigned Readings:

International Political Communities: An Anthology (Anchor Books, 1966). Chapters 1 and 2.
Philip Jacob and James Toscano, The Integration of Political Communities (Lippincott, 1964), pp. 1-16.

International relations is not just concerned with the study of conflict and war. It tries to go beyond this to analyze peaceful developments. One of the most significant and interesting developments in this area is the formation of communities. For a variety of reasons and purposes, groups of nation-states have decided to come together. Some of them are successful; others are not. There are many implications of this movement. Is the nation-state the ultimate governmental unit or is something larger evolving? Will nations give up some sovereignty to a larger community unit? What nations are most likely to form communities? Who is likely to succeed and who to fail?

Let us examine political communities. Start with Deutsch's conception of "community" from the first chapter of the anthology listed above. Note that in that same book Haas, as well as other authors, use very different definitions of community. Deutsch believes that formation of political communities is possible anywhere at any time, given certain conditions. Haas and others would wait for the creation of particular community institutions. In the first section of their volume, Jacob and Toscano try to operationalize Deutsch's definition with a series of indicators. On pages 16 through 45 of that volume they discuss some of the indicators in more detail. We will work with these concepts.

Our hypothesis for study is: that a political community exists or will exist in the near future between the selected nation-states.

Select two nation-states. You can choose any nations but recall if there is a high probability that a community exists between these states, (say you know they are members of a community group), then you may have to cope with great masses of data. If you select obscure nations you may not find enough data to complete the exercise. Even if you know that a nation is a member of a community grouping, it is still possible to include it in this exercise, because that nation may or may not be a community member under Deutsch's sense of the term. You may even find that the community grouping is not as closely-knit as supposed.

Selected Nation-states: (1) ____________________________________

(2) ____________________________________

There are a number of places where data can be located. One of the things we want to do is try to evaluate the data sources. A major source for statistical information is the Russett et. al. volume. The sources of their information are listed. They tabulate information by item across all nations. However, often information from different years is listed side-by-side. Many times there are errors in the original information which are carried over into the volume. Check on some of the sources of the data. A library should have issues of the United Nations Handbooks, Yearbooks of various nations, Handbooks of Political Data, etc. Beyond this, information is often contained in newspapers. A look at the index of the New York Times often yields much information. Finally, you can check the data in books about the nations you are concerned with.

Evaluate the data you have located by answering the following questions:

1. Can you always find the information you need? Did you sometimes have to compute the information you wanted from raw materials?

2. What estimates of error are given? Is there a chance that error occurred in the reporting? Note that even U.N. statistics have errors in them. U.N. figures are supplied by the various nations which have different methods of counting and various levels of statistical competency. Some, for example, have never completed real censuses and base their figures on estimates. Other nations get aid based on these U.N. figures and tend to inflate their numbers. Some figures, particularly the political ones, are not published because they might tend to be inflamatory. Evaluate the amount and types of error which are likely in your raw data.

3. How close to raw figures is your data? In other words, how much is estimated? How many computations have been performed on the data before you use it? Is it in percentage terms? What are the percentages based on? (For example, a figure for 1967 may have as a percentage base the census of 1950.) Is your figure a mean? a median? How do you interpret these figures?

4. Give an overall evaluation of the data you have compiled. Was it necessary on occasion to compare different time periods? What kinds of data are not available?

5. List your data tallies for each variable below:

Now all the data is present. All that remains is a test of our hypothesis. Can we go directly from the hypothesis to the data and say, "It's obviously a community," or "It's obviously not a community"? A direct decision is not possible. It would appear that some more work is necessary before we can begin to consider this main point.

Deutsch speaks of a "threshhold," by which he means the point at which community is achieved. He uses the term because it is a broad rather than a narrow one. Operationalize this by indicating:

1. At what level each of the indicators must reach before community is achieved. Give reasons for your decision.

2. How many of the indicators must have reached the community threshhold before you can say that they all confirm your diagnosis of community? Again, give reasons for your decision.

3. Alternatively, instead of leaving the data in raw form, develop indices by assigning a score to each of the indicators. Then compute the total score for the study and decide from this if community exists. What score is necessary for the achievement of community?

4. Your decision: Does community exist? Why?

5. How likely is community to occur within what amount of time? What would be necessary for the achievement of a political community, according to your study?

Evaluate your work by answering the following questions:

1. Do you think you gave an accurate portrayal of political community with this type of study? What would have improved it?

2. Assess the limitations of using this type of aggregate data.

3. What safeguards are necessary when you do this kind of work?

4. If you were repeating the study, what changes would you make?

5. Using Haas' definition of community and the data you collected, could you make the same conclusions about political community? Why or why not?

__Supplementary__: Repeat the study for different nations using Haas' or Etzioni's definition of political community. Compare your results to the ones obtained in the first part of this work.

Exercise 10

Analysis of Voting Behavior - United Nations

Assigned Readings:

Bruce M. Russett, Trends in World Politics (Macmillan, 1965), Chapters 5 and 6.

Thomas Hovet, Jr., Bloc Politics in the United Nations (Harvard University Press, 1960), Chapter 2.

Louis Guttman, "The Cornell Technique for Scaling and Intensity Analysis," Educational and Psychological Measurement, Vol. 7 (Summer, 1947), pp. 247-279.

Supplementary Readings:

Hayward B. Alker, "Dimensions of Conflict in the General Assembly," American Political Science Review, vol. 58 (September, 1964), pp. 642-657.

Leroy Rieselbach, "Quantitative Techniques for Studying Voting Behavior in the United Nations General Assembly," International Organization, vol. 14 (Spring, 1960), pp. 291-306.

Kenneth Janda, Data Processing (Northwestern University Press, 1965), pp. 168-171.

Robert N. Ford, "A Rapid Scoring Procedure for Scaling Attitude Questions," Public Opinion Quarterly, vol. 14 (Fall, 1950), pp. 507-532.

In this exercise we will utilize some of the General Assembly votes to make scales and thus discover whether blocs do exist in the United Nations. Much of political science has been concerned with analyses of voting patterns and behavior, so much so that it has become a highly technical and skillful method. Now this can be applied to this one area of international relations.

Our research hypothesis is: that regional blocs and groupings which share certain political attitudes exist within the United Nations and are reflected in voting patterns in the General Assembly. Our interest in these voting patterns stems from their usefulness as indicators of the attitudes and policies of the various nation-states. Often the internal politics of various states is illuminated by their stance in the United Nations. The interaction of the states, their bargaining about votes, political alignments and expressions of attitudes all show us that the General Assembly is one arena of politics to be watched. Here we are asking many questions. Does bipolarity among the world states exist? What are the significant issues?

A number of authors have worked with UN votes. Alker and Russett have used UN voting behavior to discover the major dimensions of conflict among states in the international system, i.e. the major issues which divide states today. Hovet looked for the voting blocs or the states which vote together and presumably have compatible policies. Currently, Dorothy Dodge is working with roll call votes and the voting patterns of the underdeveloped world, an area of increasing importance in the UN. We are indebted to her for assistance with this exercise.

By examining voting behavior in the UN over time, we can discern patterns and changes in state attitudes and behavior on various issues. This may allow a degree of predictability regarding future attitudes and behavior of the states in the international system. You should, however, be aware of the limitations in using UN voting records for the purposes outlined above. First, some very important states such as West Germany and Communist China are not to date represented in the UN. Second, the principle of equality in voting tends to distort the actual power of a state in the international system, inflating the power of the small states and deflating the power of the major powers. Third, votes in the General Assembly are only recommendations and entail few responsibilities on the part of most members. States may thus be more willing to endorse a general course of action knowing they are unlikely to have to bear responsibility for actually implementing the action.

Still, most students of international organization seem to feel that state behavior in the UN is responsible and that it does in fact reflect the attitudes and alignments of states on issues, even though we must use caution in predicting future state action from this voting behavior.

In this exercise we will be using UN votes to make indexes and scales in order to rank states along various issue dimensions and then locate any blocs of states that may exist along these dimensions. Any set of votes can be used to create an index, but such a measuring instrument would be unreliable and difficult to interpret unless all the votes selected tapped the same attitude dimension. The choice of which votes to include in an index is left to the analyst's judgment. A scale, on the other hand, represents a higher degree of order in the data than an index and thus the data must conform to certain criteria in order to be considered scalable. A Guttman scale, for instance, yields an ordering of the data from "most" to "least." Knowing the scale score or position of an analysis unit means you can make relative statements about it - statements about that particular unit with respect to other units, all concerning that one underlying attitude dimension.

There are various types of scales and many methods of scale construction. Here we will first use a weighting technique developed by R. Likert to construct an index to rank countries on various sets of UN votes. Then we will use a Guttman scaling technique to determine if these sets of votes constitute scales, each measuring a single attitude dimension in the UN.

In our analysis of UN voting, each vote cast by a member state serves as an indicator of that state's attitude regarding the issue at hand. Thus the first step in constructing a Likert index is to choose a set of votes which will best reflect the underlying issue which is being studied. In this example, we have selected four votes on the Arab-Israeli conflict. The second step is to assign numerical values to each of the responses. Since we are interested in measuring a pro to anti-Israel dimension in this example, we have assigned a value of 2 to each vote favoring Israel, 1 to each abstention (assuming abstentions to be neutral responses), and 0 to each vote against Israel. By summing these values across all four votes we can obtain an index score reflecting the degree of favorableness or hostility of each country toward Israel. Table 1 illustrates the Likert attitude index. Note that in this set of votes, a "No" vote on I, II, or III is scored 2, indicating a pro-Israel attitude, while a "No" vote on IV is scored 0.

Table 1: UN Votes on the Arab-Israeli Conflict

Country	I Condemn Israeli Aggression	II Resettle Arab Refugees In Israel	III Condemn Israeli Diversion of Jordan River	IV Open Suez Canal to Ships of All States		Score
A	No (2)	No (2)	No (2)	Yes (2)	=	8
B	No (2)	Abstain (1)	No (2)	Yes (2)	=	7
C	No (2)	No (2)	No (2)	Abstain (1)	=	7
D	No (2)	Abstain (1)	Yes (0)	Yes (2)	=	5
E	Abstain (1)	Abstain (1)	Yes (0)	Abstain (1)	=	3
F	Abstain (1)	Yes (0)	Yes (0)	No (0)	=	1
G	Yes (0)	Yes (0)	Yes (0)	Abstain (1)	=	1
H	Yes (0)	Yes (0)	Yes (0)	No (0)	=	0

Our index would seem to indicate that countries A, B, and C are much more favorable toward Israel than are countries G and H. Unfortunately, such an index is no better than our judgment in determining whether we are really measuring a pro-Israel attitude dimension.

However, the range of scores in Table 1 can be considered a Likert scale if it can be shown that all of the votes included in the set of data are measuring the same underlying attitude dimension. While there are various techniques for determining if the Likert scale is valid, they are all concerned with the direction and magnitude of the extreme votes. In our example in Table 1 if country G and H had voted "No" on the first vote (aggression) we would have to conclude that this vote was an unsatisfactory indicator of a pro-Israeli attitude and thus eliminate it from the set of votes. However, there is a difference between the votes of the states at each end of the index on each vote and thus it would appear that we are safe in calling this set of votes a scale reflecting an underlying pro-Israel attitude dimension.

Another and more common scaling procedure was developed by Louis Guttman. The primary characteristic of a Guttman scale is the ordering of both the set of items to be scaled and the individuals or nations from "most" to "least" something. If an individual or nation who is "most" favorable (has the highest scale score) responds favorably to a "difficult" item or vote then he will respond favorably to all items below it. If a set of votes constitutes a perfect Guttman scale, then one can exactly specify the pattern of the vote for each individual just by knowing his scale score.

Table 2 illustrates a perfect Guttman scale. Notice that the Guttman scale score, unlike the Likert score, tells us exactly how a particular country voted on each of the items. A score of 8 indicates that a country voted pro-Israel on each item; a score of 6 indicates a pro-Israel position on the first three votes, and so forth.

Table 2: A Perfect Guttman Scale

Country	Vote 1	Vote 2	Vote 3	Vote 4	Guttman Scale Score
A	+	+	+	+ *	8
B	+	+	+	-	6
C	+	+	-	-	4
D	+	-	-	-	2
E	-	-	-	-	0

(+ signifies a favorable response; - signifies an unfavorable response)

* Category boundaries

Obtaining a perfect Guttman scale as in Table 1 is extremely rare in the social sciences. Typically, one will find a number of "errors" in the responses which prevents one from accurately predicting the pattern of the responses from the individual's score. These are referred to as non-scale responses. If there are a large number of errors or non-scale responses, then our set of votes cannot constitute a scale. A rule of thumb states that no more than 10% of the responses should be errors if the scale is to be considered reliable. A set of votes with a Coefficient of Reproduc ibility (number of responses minus number of errors divided by the total responses) of .90 or more would provide initial evidence of the scability of these votes. The student should read the Guttman article for the other conditions of scalability.

In constructing a Guttman scale the first step is to weight the responses using the Likert or some other technique and then to obtain an initial score for each country. In this exercise you can use the Likert score. Then each country is ranked by its score. The next step is to draw the boundaries between the response categories for each vote in such a way as to minimize the number of errors in each category. If more than one alternative is possible, the boundary is generally drawn nearer the extreme of the vote ranking in order to move resulting scale scores closer to the median of the scale. This will become more apparent as you begin to experiment with the data. After the category boundaries are drawn, one calculates the number of errors in each category and, on the basis of the total errors, calculates the Coefficient of Reproducibility. If the set of votes scales one can then determine the scale scores and assign non-scale countries to a scale position. Scale positions can be easily determined by extending the category boundaries across all items in the table and then assigning a scale score to each ideal response pattern. From this score, one can then reproduce the pattern of votes for each country with no more than 10% errors.

In Table 3 we have applied the Guttman technique to our data from Table 1. To avoid confusion, it is sometimes helpful to change the Yes, Abstain, and No categories to +, 0, and - , indicating degrees of favorableness to the attitude dimension being measured.

Table 3: Guttman Scale of UN Votes on the Arab-Israeli Conflict

Country	Vote I	Vote II	Vote III	Vote IV	Likert Score	Guttman Scale Score	Scale Pattern
A	+	+	+	+	8	8	+ + + +
B	+	(0)	+	+	7	8	+ + + +
C	+	+	+	0	7	7	+ + + 0
D	+	0	-	(+)	5	4	+ 0 - 0
E	0	0	-	0	3	3	0 0 - 0
F	0	-	-	-	1	1	0 - - -
G	-	-	-	(0)	1	0	- - - -
H	-	-	-	-	0	0	- - - -
Errors ( )	0	1	0	2	Total Errors =	3	

Coefficient of Reproducibility = _______

It is important to remember that any set of votes or responses may or may not form a scale. To form a scale, the data must conform to certain criteria; the characteristics of an index, on the other hand, are determined more or less arbitrarily by an analyst. For this reason, scales constitute a more sensitive and theoretically meaningful measuring instrument than do indexes.

In the following pages you are given two sets of votes, one of which was selected to measure attitudes in the East-West conflict, the other to measure attitudes on the issue of colonialism. Your first task is to construct a Likert index. Then following the examples in this exercise you are to determine the scalability of each set of votes and assign each country a Guttman scale score if the votes scale. Note that in these sets of votes, some countries were absent or did not participate in the voting. How do you propose to handle these cases?

The key to the votes in Table 4 is provided below.

East-West Issues

1 - Vote on the five-power resolution in effect requiring that a two-thirds majority would be needed to change the representation of China in the U.N., December 15, 1961.

2 - Vote on the Mongolian resolution urging adherence to the principles of self-determination and non-interference in the internal affairs of any state with reference to Cuba's complaint, February 20, 1962.

3 - Vote to place the question of Hungary on the agenda of the General Assembly, September 24, 1962.

4 - Vote on a USSR resolution to seat Communist China, October 30, 1962.

5 - Vote on a Mexican resolution expressing concern over U.S.-Cuban relations, April 21, 1961.

Colonial Issues

1 - Vote on a U.S. request to consider separately the operative paragraph of the 45-power resolution urging independence for Angola, January 30, 1962.

2 - Vote on a resolution requesting the Special Committee to consider whether Southern Rhodesia had attained a full measure of self-government in light of the disenfranchisement of a majority of the people of that country, February 23, 1962.

3 - Vote on the Bulgarian-Polish resolution condemning Portugal's repressive measures in Angola and urging application of sanctions on Portugal, January 30, 1962.

4 - Vote on a 34-power resolution condemning South Africa's apartheid policies and urging nations to apply sanctions, November 6, 1962.

5 - Vote on the operative paragraph of the 45-power resolution urging independence for Angola, January 30, 1962.

(1) What attitude dimensions might you expect to find underlying each of these two sets of votes? ______________________________

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(2) Indicate how you would weight each vote using the Likert technique and then calculate the Likert score in Table 4. ______________________

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Table 4: Votes and Likert Weightings

	East-West Issue					Likert Score	Colonial Issue					Likert Score
Country	1	2	3	4	5		1	2	3	4	5	
Afghanistan	A	Y	A	Y	Y		A	Y	A	Y	Y	
Albania	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Argentina	Y	N	Y	N	N		Y	A	N	A	N	
Australia	Y	N	Y	N	N		Y	N	N	N	N	
Austria	A	N	Y	A	A		Y	N	N	A	N	
Belgium	Y	N	Y	N	N		Y	N	N	N	N	
Bolivia	Y	N		N	Y		Y	A	A	A	A	
Brazil	Y	N	Y	N	Y		Y	A	N	A	A	
Bulgaria	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Burma	N	Y	A	Y	Y		N	Y	A	Y	Y	
Byelorussian SSR	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Cambodia	N	Y	N	Y	Y		N	Y	A	Y	Y	
Cameroon	Y	A	N	N			Y	Y	Y	Y	A	
Canada	Y	N	Y	N	N		Y	N	N	N	N	
Central African Republic	Y	A	N	N	A		A	Y	A		A	
Ceylon	N	Y	N	Y	Y		N	Y	A	Y	Y	
Chad	Y			N			N		A	Y	Y	
Chile	Y	N	Y	N	Y		Y	A	N	A	N	
China	Y	N	Y	N	N		Y	A	N	Y	N	
Colombia	Y	N	Y	N	N		Y	A	N	A	A	
Congo (Brazz.)	Y	A		N			N	Y	A	Y	Y	
Congo (Leopold.)	N	A	A	N	A		N	Y	A	Y	Y	
Costa Rica	Y	N	Y	N	N		Y	A	N	A	N	
Cuba	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Cyprus	A	A		A	A		A	Y	A	Y	A	
Czechoslovakia	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Dahomey	Y		N	N	A		A	Y	A	Y	A	
Denmark	Y	N	Y	Y	A		Y	N	N	A	N	
Dominican Republic	Y	N	Y	N	A		Y	A	N	A	N	
Ecuador	Y	N	Y	N	Y		Y	A	N		A	
El Salvador	Y	N	Y	N	N		Y	A	N	A	N	
Ethiopia	A	Y	N	Y	Y		N	Y	Y	Y	Y	
Finland	A	A	A	N	A		Y	N	N	A	N	
France	Y	N	Y	N	N		Y	N	N	N	A	

Table 4 (Continued)

Country	East-West Issue 1	2	3	4	5	Likert Score	Colonial Issue 1	2	3	4	5	Likert Score
Gabon		A		N	N		N	Y	A		Y	
Ghana	A	Y	N	Y	Y		N	Y	Y	Y	Y	
Greece	Y	N	A	N	N		Y	N	N	N	N	
Guatemala	Y	N	Y	N	N		Y	A	N	A	N	
Guinea	N	Y		Y	Y		N	Y	Y	Y	Y	
Haiti	Y	N	Y	N			Y	Y	N	Y	A	
Honduras	Y	N	Y	N	N		Y	A	N	A	N	
Hungary	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Iceland	Y	N	Y	A	A			N		A		
India	N	Y		Y	Y		N	Y	Y	Y	Y	
Indonesia	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Iran	Y	N	A	N	A		Y	Y	N	Y	Y	
Iraq	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Ireland	Y	N	Y	N	Y		Y	A	N	N	N	
Israel	Y	N	A	A	N		Y	A	A	Y	A	
Italy	Y	N	Y	N	N		Y	N	N	A	N	
Ivory Coast	Y	A	N	N	N		N	Y	A	Y	A	
Japan	Y	N	Y	N	N		Y	A	N	N	A	
Jordan	Y	Y	A	N	A		N	Y	A	Y	Y	
Laos	Y	A	N	Y	A		N	A	A	Y	A	
Lebanon	Y	A	A	A	Y		N	Y	A	Y	Y	
Liberia	Y	A	A	N	A		A	Y	A	Y	A	
Libya	Y	Y	A	N	Y		N	Y	A	Y	Y	
Luxembourg	Y	N	Y	N	N		Y	N	N	N	N	
Madagascar	Y	A	N	N	N		A	Y	A	Y	A	
Malaysia	Y	N	Y	A	A		Y	A	A	Y	A	
Mali	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Mauritania		A	N	N			N	Y	A	Y	Y	
Mexico	Y	N	Y	N	Y		Y	A	N	Y	A	
Mongolia	N	Y	N	Y			N	Y	Y	Y	Y	
Morocco	A	Y	A	Y	Y		N	Y	Y	Y	Y	
Nepal	A	Y	A	Y	Y		N	Y	A	Y	Y	
Netherlands	Y	N	Y	A	N		Y	N	N	N	N	
New Zealand	Y	N	Y	N	N		Y	N	N	N	N	
Nicaragua	Y	N		N	N		Y		N	A	N	
Niger	Y	A	N		N			Y		Y	A	
Nigeria	A	Y	A	A	Y		N	Y	A	Y	Y	

Table 4 (Continued)

Country	East-West Issues					Likert Score	Colonial Issues					Likert Score
	1	2	3	4	5		1	2	3	4	5	
Norway	Y	N	Y	Y	A		Y	N	N	A	N	
Pakistan	A	A	Y	Y	N			Y	A	Y	Y	
Panama	Y	N	Y	N	N		Y	A	N	A	N	
Paraguay	Y	N	Y	N	N		Y	A	N		N	
Peru	Y	N	Y	N	N		Y	A	N	A	N	
Philippines	Y	N	Y	N	N		Y	Y	N	Y	N	
Poland	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Portugal	Y			A	A			N		N		
Romania	N	Y	N	Y	Y		N	Y	Y	Y	Y	
Saudi Arabia	A	Y	N	A	Y		N	Y	A	Y	A	
Senegal	A	A	N	N	A		N	Y	Y	Y	Y	
Sierra Leone	A	Y	Y	Y			N	Y	A	Y	Y	
Somalia	A	Y	N	Y	Y		N	Y	Y	Y	Y	
South Africa	Y	N	Y	N	A		Y	N	N	N	N	
Spain	Y	N	Y	N	A		Y	N	N	N	N	
Sudan	A	Y	A	Y	Y		Y	Y	Y	Y	A	
Sweden	A	A	Y	Y	A		Y	N	N	A	N	
Syrian Arab Rep.	A	Y	N	Y			N	Y	A	Y	Y	
Tanzania	A		N	Y			N	Y	Y	Y	Y	
Thailand	Y	N	Y	N	N		A	A	N	A	A	
Togo		A	A	A	Y		N	Y	A	Y	A	
Tunisia	A	Y	A	Y	Y		A	Y	A	Y	A	
Turkey	Y	N	Y	N	N		Y	N	N	N	N	
Ukranian SSR	N	Y	N	Y	Y		N	Y	Y	Y	Y	
USSR	N	Y	N	Y	Y		N	Y	Y	Y	Y	
United Arab Rep.	N	Y			Y		N	Y	Y	Y	Y	
United Kingdom	Y	N	Y	Y	N		Y	N	N	N	N	
United States	Y	N	Y	Y	N		Y	N	N	N	N	
Upper Volta	Y	Y	N	N	Y		N	Y	A	Y	Y	
Uruguay	Y	N	Y	N	N		Y	A	N	A	A	
Venezuela	Y	N	Y	N	N		Y	A	N	A	A	
Yemen	A	Y	A	N	Y		N	Y	A	Y	Y	
Yugoslavia	N	Y	N	Y	Y		N	Y	Y	Y	Y	

Scale East-West Issues Below:

Scale Colonial Issues below:

(3) What coefficient of reproducibility do you get for each of these sets of votes?

(4) Are there any changes in procedure you could make to obtain scales for both sets of data?

(5) Determine the scale pattern for the scalable data and assign non-scale countries to the appropriate scale positions.

Interpretation of the Data

(1) Does your analysis of the first set of votes lend support to Alker and Russett's finding that one of the super-issues in the UN is the East-West conflict? Explain.

(2) Does your analysis of the second set of votes present any evidence of a pro-colonial - anti-colonial attitude dimension in the UN?

Could you interpret the positions of the countries on this issue on the basis of any other underlying dimension?

(3) Do the scale scores enable you to locate any voting blocs or groupings on these issues? List the countries in these blocs and label the blocs.

(4) How do these voting groups compare with Hovet's listing of caucusing groups in the UN? Can you explain the exceptions?

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(5) Examine the errors in the set of scalable votes and then try to explain the reasons for some of these non-scale votes?

(6) What general comments do you have regarding this method of analyzing UN voting patterns and the results obtained using it?

Optional Exercises

1. Select a new set of votes from those punched on the IBM cards included with this Manual and repeat the scaling procedure in this exercise using the rapid scaling technique explained in the Ford article. Note that in using this procedure you will have to develop some rule for dichotomizing the votes.

2. Using the indices of cohesion described in the article by Rieselbach, measure the cohesion of each of the voting blocs or groups found in this exercise. Then compare the degree to which blocs are alike using the Index of Likeness. Note that you could use measures of voting agreement to locate voting blocs as illustrated in this article.

Exercise 11

International Regionalism

Assigned Readings:

Bruce M. Russett, International Regions and the International System (Rand McNally, 1967), Chapter 1.
J. F. Nye, International Regionalism (Little & Brown, 1968), pp. 377-428.

One of the problems which arises in international politics is the question of the nature of the actors whose actions we are studying. It is widely believed that the structure of the system influences or at least limits the actions of nation-states, which are of course the primary actors in international politics. Some writers, however, argue that we must also study subsystems or regions within the international system as these subsystems may be even more influential over the actions of nation-states than is the system as a whole. Thus, we are initially faced with two questions: (1) what constitutes a subsystem or region, and (2) what variables can be used to delineate these subsystems? Does knowledge of the region to which a state belongs tell us anything about the probable behavior of that state?

If such regions exist and do affect the behavior of members of that region, then it may well be that such variables as economic growth, education, power, nationalism, etc. have different meanings and consequences in different regions. Indonesia's capabilities appear insignificant when viewed in the context of the system as a whole, but these capabilities would become rather significant if it could be shown that Indonesia were also part of a Southeast Asian subsystem.

Likewise, if regions do exist, we may have to consider them as actors within the international system and thus account for the behavior of these subsystems in any general theory of international politics.

Finally, the existence of regions or subsystems could be of considerable significance in the process of political and economic integration or community formation. Will integration take place on a universal basis, on a regional basis, or is integration unrelated to regionalism? Much of the present work being done on regionalism seems to imply that social, economic or political integration is the basis for regionalism.

This leads us to the problem of defining regionalism and delineating regions. All of you are familiar with such terms as the developing states, the Arab world, the Middle East, the Western states, the non-aligned states, etc. Unfortunately, most of these terms have no precise meaning. Try, for example, to decide which countries are developing, or which are located in the Middle East or which are the Western states. All of these terms, however, imply something about the nature of the states which compose these so-called regions or groupings. The developing countries presumably share a common economic if not political position. The Western states presumably share a common geographic location or else certain common political values. If we could agree on precise definitions for regions and could be reasonably assured that states which belong to various regions actually share common characteristics which are meaningful for explaining state behavior in the international system, we would have come a long way toward reducing the large number of units which form the basis for the analysis of international political behavior.

Thus, the purpose of this lab exercise is to acquaint the student with some of the problems involved in defining regions, using regions as units of analysis, developing indices to determine the existence of regions of various sorts, and finally testing our indices to determine whether they are useful in explaining state behavior in the international system.

First let us examine some of the common terms mentioned above to determine if regions as defined on such a broad basis are meaningful for predicting the behavior of states within that region.

1) Turning to your findings on the UN voting lab, does knowing whether a state is developed or underdeveloped tell us anything about that state's voting behavior in the U.N.? What are your criteria for determining whether or not a state is developed or underdeveloped? ____________________

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2) Does knowledge of a state's geographical location tell us anything about its voting behavior, i.e., can we predict a state's vote on the basis of its membership in some geographic region? ____________________

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3) Would you say that regions as defined above are meaningful units of analysis in international politics? Explain. ____________________

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The problem with defining regions on one dimension only, as we have above, is that such variables as geographic proximity or level of economic development tell us little about the relations among the states within the region. Whatever merit these indicators may have they are based on the assumption that states with the same level of economic development are likely to have certain common behavioral characteristics. While this may be true for some issues, many other variables also affect a state's behavior and thus any index of regionalism must include other indicators as well.

4) What criteria does Russett use to delineate regions and what indices does he develop for these criteria?

Criteria or variables	Indices

5) What assumptions underlie Russett's variables? In other words, why do his variables allow us to determine which countries belong to various regions, if in fact this is true?

Russett uses a rather complex statistical method known as factor analysis to delineate groupings of states on these five variables. Such a technique is beyond the scope of this exercise, however. Instead, for the remainder of the exercise, we will examine some of the hypotheses about regional integration which appear in the literature.

One common hypothesis is that successful regional integration depends partly on the capacity of the states in that region to respond to each other's needs. Such responsiveness may in part depend upon the ability of the states to communicate with each other and in part upon the capabilities of a state to meet material and other needs of its regional partners. The European Economic Community is generally considered an example of the most successful attempt at economic integration while the Latin American Free Trade Association has made little progress in this direction. The European Free Trade Association might be placed somewhere between these two extremes. Using the World Handbook of Political and Social Indicators, choose an index of economic capability and compare the countries in the three regions on this index. (A list of the countries in each organization can be found in the introduction of the Nye book.)

6) What indicator(s) have you selected? ______________________________

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EEC	Index	LAFTA	Index	EFTA	Index

7) Does there appear to be a significant difference between the means of the three regions on your index?

8) How would you explain your findings?

Intra-regional travel is sometimes used as an indicator of the degree of communication among states within a region.

9) Taking the EEC and EFTA, compare the degree of intra-regional travel within each of these regions. This can be done by first determining the total number of tourists entering each country, calculating the percentage of those tourists who come from other states within the region, and then averaging these percentages to get a percentage index for the region as a whole. The data can be obtained in the UN Statistical Yearbooks.

Percent of Tourists Entering from Other Countries within the Region

EEC	Percent	EFTA	Percent
Belgium		Austria	
France		Britain	
Germany		Denmark	
Italy		Norway	
Luxembourg		Portugal	
Netherlands		Sweden	
		Switzerland	
Average	________	Average	________

10) Does there appear to be a significant difference in the amount of intra-regional travel in these two regions?

11) How would you evaluate your findings? ______________________________

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12) Does this appear to be a very meaningful index of integration?

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Finally, most students of international regionalism consider economic interdependence as one basis for developing regional ties and eventual regional integration. By interdependence, we mean that both or all parties to some relationship are mutually dependent upon the other parties at least to some significant degree. Trading patterns may be one way of analyzing interdependence among states within a region. Such an index of intra-regional trade could also serve as an indicator of the responsiveness of the members of the region to each other, and could also serve as an index of intra-regional communication.

13) Using the direction of trade tables in the Yearbook of International Trade Statistics, construct an index of intra-regional trade for the EEC, LAFTA, and EFTA. Such an index can be constructed by determining the total imports of each country in the region, calculating the percentage of those imports coming from other countries within the region, and then averaging these percentages to obtain an index for the region as a whole.

Percent of Imports from Other Countries within the Region

EEC	Percent	EFTA	Percent	LAFTA	Percent
Belgium		Austria		Argentina	
France		Britain		Bolivia	
Germany		Denmark		Brazil	
Italy		Norway		Chile	
Luxembourg		Portugal		Colombia	
Netherlands		Sweden		Ecuador	
		Switzerland		Mexico	
				Paraguay	
				Peru	
				Uruguay	
				Venezuela	
Average	________	Average	________	Average	________

14) Does there seem to be a significant difference among these regions in terms of this index? ____________________

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15) How would you evaluate your findings? ____________________

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16) Does this appear to be a meaningful index of economic integration? Explain. ____________________

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17) Which of the indices examined in this exercise appears most meaningful in delineating regions? Why? ____________________

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18) What qualifications or limitations are involved in the use of such indices? ____________________

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Optional

Using an IBM counter-sorter and the data punched on the IBM cards included with this manual, see if you can discover any relationship between one or more of the socio-economic variables included and the political behavior of nations as indicated by their voting in the UN. To do this, first select one or more votes that you think might be related to one or more of the socio-economic variables and formulate a hypothesis about the nature of this expected relationship. Cross-tabulate this data as you have done in previous exercises using the counter-sorter to quickly group the data into tables, and then determine the statistical significance of this relationship using a chi-square test. Note that this test can be used to test the significance of data grouped into three or more categories as well as data grouped in four-fold contingency tables. Thus, the data does not have to be dichotomized and you can take abstentions into account as a separate category if you so desire.

Chi-square tests of this sort basically measure the difference between the expected and the observed frequencies in each cell of the table. The more the distribution of cell entries departs from randomness, the stronger is the relationship between the variables being tested. You should consult a standard statistical text for a more complete description of this statistic and for the formulas to use in computing the significance of the relationship.

After completing this statistical analysis, evaluate and explain your findings in light of your hypothesis and your understanding of regionalism. Do these socio-economic variables appear useful in predicting and explaining state behavior? Why or why not?

Exercise 12

The Theory of Games in International Relations

Note: Most of these readings should be done after the exercise.

Assigned Readings:

Morton A. Kaplan, New Approaches to International Relations (New York: St. Martin's Press, 1968), pp. 485-518.
Thomas C. Schelling, The Strategy of Conflict (Cambridge: Harvard University Press, 1960), chapters 1-3.

Supplementary Readings:

Anatol Rapaport, Fights, Games and Debates (Ann Arbor: University of Michigan Press, 1960), pp. 107-242.
Thomas C. Schelling, Arms and Influence (New Haven: Yale University Press, 1966).

For the uninitiated: John D. Williams, The Compleat Strategist (New York: McGraw Hill, 1966).

Most people have at one time encountered "Bridge," "Chess," "Monopoly," "Checkers," and other sundry games. In addition to the fun involved, all these and other games have in common certain characteristics. They are all goal-oriented. They have clearly defined objectives, whether the checkmate of the king, the amassment of the most wealth, or scoring the largest number of points. To achieve these goals there are clearly-stated rules. These rules of play determine the moves each player will make. A third important element in the play of a game is strategy. Strategy involves the ability of a player to calculate ahead and plan his moves in order to achieve the goal. For instance, a bridge player has a particular set of cards in his hand. His objective is to get the most points. He poses alternative strategies. He then decides which cards to play first, second, etc. If his opponents play certain cards he will play certain other cards, etc. The outcome of the bridge hand - its success or failure - is dependent on the way he has planned the strategy.

Literature has referred to the "game of life." Recently, scholars have taken this more seriously. Using the elements of games, they have observed human behavior and sought to analyze it in terms of games. Eric Berne (The Games People Play) is a noted example with great popular appeal. The field of international relations has been a particularly fertile ground for the game theorists. In international relations, the players are the nation-states; the rules constitute diplomacy; the goal is variable - world power being a common goal, defense another one; the strategies are often embodied in the foreign policies of the nations.

Using these elements, the analysts reasoned they could study bargaining and play in similar situations and discover the principles or rules underlying the whole of international behavior. Working on these notions a complex vocabulary was developed, only part of which will be introduced here.

In the first section, you will engage in tacit bargaining, of the kind often employed by nation-states. Schelling has reasoned that often nations can engage in bargaining without much communication, and that the nature of the problem and the situation's elements will lead to an understood outcome. Try the brief exercises below. Then compare the results with your classmates. How often did you bargain correctly?

1. You are a spy in enemy territory, seeking valuable information. To save your country from a dire threat, you must meet an agent and get from him the plans for the supersonic bomber. But you are being watched. You know that the agent is one of a number of men and that the password will be one of the following words. You have only one chance to say a word to a man. Which password will you choose?

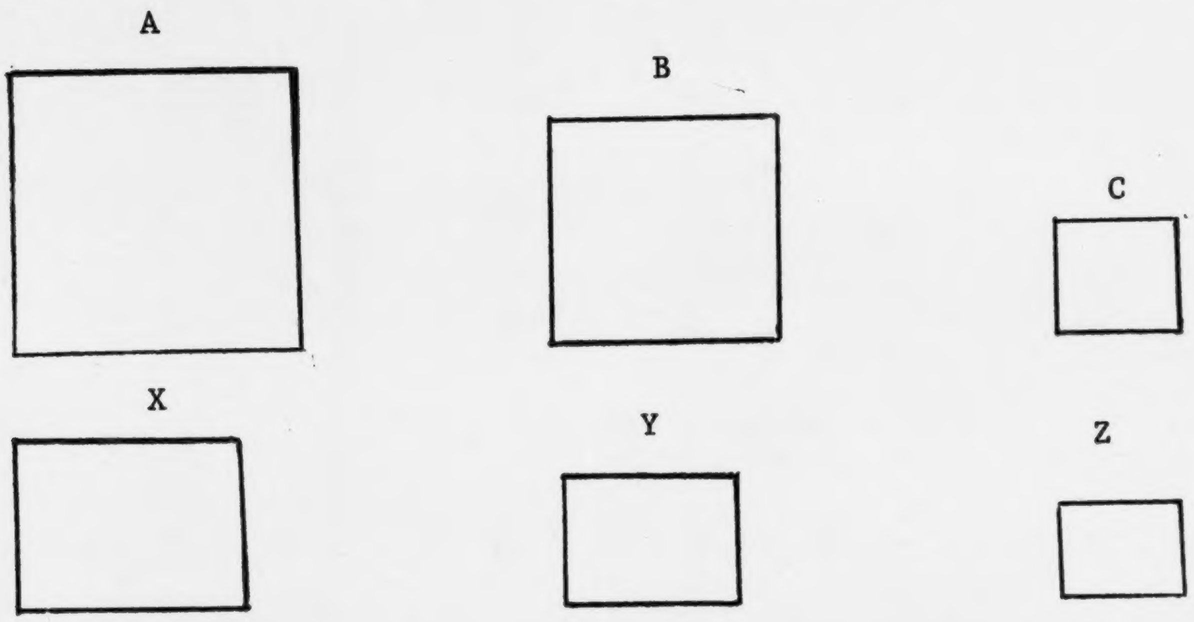
a. canary b. robin c. eagle d. woodchuck e. bluejay

Your choice ____________________

2. An old friend is coming to campus. You don't know when or where on campus he will arrive. There is no way to communicate with him. You want to be sure you meet. Where will you go? At what time?

Your answer ____

3. You are the member of a peace conference. Your country is one of three which has just won the war. Countries A, B, and C, are represented below. They have won a good fight and now are trying to divide up the spoils which include the territories of countries X, Y, and Z. With only this information howwould you make the division?



Your answer ____

Now compare your answers. If you have the same answers as everyone else in the class, you have been a good tacit bargainer. Now, read Chapter 3 in Schelling's Strategy of Conflict. The problems you have just encountered are similar to the ones he gives in that chapter. If you selected the answer "d" for the first one, the answer of twelve noon and a prominent monument building, etc., for the second, and the answer of A gets X, B-Y, C-Z, for the third you are with the majority. In a trial with over 500 freshmen and sophomores at the University of Minnesota, over 90% selected these answers. Why? As Schelling states, they are obvious choices.

Going beyond this simple type of game, let us examine the nature of a two-person game. This kind of game is, as its name implies, limited to two persons or players. Two major divisions can be made in the kinds of two-person games: zero-sum games and non-zero-sum games. A zero-sum game is one where when one player gains the other automatically loses. If one player wins the game the other loses all. In a non-zero-sum game the loser has not been totally wiped out. Play this example of a zero-sum game with a partner.

Game: Each player can add one or two to the total score. You start by selecting either one or two as a starting point. The first person to reach twenty or beyond loses the game.

Try playing this several times. After the first few times, you should note that by starting the game you can control its outcome. You can always win. How does this work? What is your strategy?

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There are several features in this game which exemplify some game theoretical principles. Not only is this a zero-sum game, but there is perfect information. This means that you know every move in the game which your opponent makes. Other games are often played with partial information or lack of information. Tacit bargaining, for instance, is played with only partial information. Secondly, this simple game shows the importance of strategy. In order to win, you must think ahead and select the key numbers which determine the outcome. The game also illustrates the concept of a saddle point. This is the point or move beyond which the outcome of the game is inevitable. In the above game, given the proper strategy, the first play determines the outcome.

One example of a non-zero-sum game is gin rummy. This game, played by two people, has an outcome where usually both players have some points. It is not a situation of winner take all, and there is only partial information. The opponents cards are hidden from each other until played.

The classic dilemma, called the Prisoner's Dilemma, is a zero-sum game played with partial information by two players. Rapoport describes it in the book, Fights, Games and Debates. Using two classmates who do not know anything about the game, have them come to a blackboard and face opposite directions with their backs toward one another. Present the problem to them and have them choose, without consultation, by writing a solution on the board.

Game: These two students have participated in an armed robbery, in the course of which a guard was killed. The police have picked them up and kept them separately. The police believe they are guilty but neither has been positively identified. The police say to each of them, "we know you are guilty but if you confess and turn state's evidence the other guy will be electrocuted and you will get only a light sentence." Will you confess? What do the two do?

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In nine out of ten cases both men will confess. It is the logical thing for them to do in order to escape the penalty. Read Rapoport's analysis of the reasoning used to reach a decision. The irony is that if both men had kept still they could not be punished. This points out one problem with game theory - the problem of reaching a decision rationally which may not yield the highest ultimate pay-off in terms of the goals. More about problems with game theory later.

So far the games used have illustrated the means of making selections and the need for strategy. When games are expanded to three persons, the problems of alliances and bargaining can be studied. Play the following simple game which illustrates some of these points.

Game: There are three countries, A, B, and C. Country A has the most power, with 50 armies, 50 steel plants, 50 square units of territory, etc.; countries B and C have less power. They have only 30 armies each, 30 steel plants each, etc. At stake is a small, neutral country which lies between them. The control of this territory is vital to each of them. A conference has been called to try to avert a war between the three nations over the disputed territory. To which nation should it go? How should it be divided? You have only five minutes of bargaining to reach a decision and find a solution.

The solution: ____

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Explain what principles of bargaining and strategy you perceived in the play of this game. What kinds of information were used? How did you determine the outcomes and goals of the nations?

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Beyond three-person games come N-person games, i.e., games with varying numbers of players. At this stage a number of other elements come into play. To illustrate, play this simple four-person game. Incidentally, this game is a variant of one introduced by Martin Shubik called "So Long Sucker."

Game: Each of the four players has four counters (can be played with any four different elements, kinds of matches, colored papers, marbles, etc. Each player must have distinguishable pieces.) The starting player is chosen by a coin toss. Play continues for ten minutes. At the end of that time the player with the most number of pieces wins the game. Starting with the first player and proceeding clockwise, each player must either: (1) put one piece down on the table, or (2) pick up one or two pieces on the table. In order to pick up the pieces on the table the player must match one from his hand to one on the table. A player may not pick up more than two pieces. He may select the second piece from those on the table. To speed up the game and allow some play, limit the time of a person's "turn" to about 30 seconds. No restrictions are placed on speech among the players. Note, a player who loses all his pieces is "out" of the game and loses.

What was the outcome of this game? ______________________________

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What can you observe about it? Where any agreements made? Who broke agreements? Why? What was the effect of broken agreements? ____________

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What did the players do to reach the goal?____________________

Note that this is a game where not only did players have to "attack" and capture other pieces but also "defend" their own pieces. How did this work out? What principles of bargaining were involved?

A Criticism of Game Theory

We have presented games and principles of game theory without much comment. Now we want to evaluate what we have learned and how it would work in the field of international relations.

Note first that game theory assumes some significant things. The major assumption is rationality. It is assumed that in a game situation a player will seek to maximize his rewards and minimize punishments and that his behavior will be directed toward that goal. He will take the most reasonable, least costly path toward the goal. In the real world this is not necessarily so. For example, the last game played illustrated that often ethics or morality will come into play. This is not a rational element. If mixed sexes are playing, the girls may gang up against the boys, the married couples against single players, or vice versa. They act irrationally for some moral, ethical or emotional reason. It has been argued that for Japan to attack Pearl Harbor in 1941 was not reasonable, yet it occurred.

Other problems occur. Not only are nations likely to behave irrationally, but they often have difficulties establishing goals. And once these goals have been established, how far is a nation willing to go to achieve them. How can another nation assess the vital nature of another nation's goals? Give some illustrations of this problem from your knowledge of history. Note that game theory assumes a rationally defined, clear-cut goal. ____

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The major problem is one of complexity. In a two-person, zero-sum game, the outcomes are fairly certain based on the play. When one enters the international arena, there are over 100 players, with widely differing goals, strategies, and rules of play. The number of outcomes is beyond even the possibilities of the computer. We note that a computer if it starts first can always win at Tic Tac Toe because it can calculate the possibilities. A computer can similarly win at Checkers. It cannot win at Chess, however, because the possibilities are too great. With international relations the possibilities become almost infinite.

In spite of these great reservations some utility can be seen for game theory in its application to conference table behavior.

Exercise 13

Factor Analysis

Assigned Readings:

H. Alker and Bruce M. Russett, *World Politics in the General Assembly* (Yale University Press, 1965), Chapters 2 and 6.

Supplementary Readings:

H. Alker, "Dimensions of Conflict in the General Assembly," *APSR*, vol. 58 (September 1964), pp. 642-57.

Bruce M. Russett, "Discovering Voting Groups in the U.N.," *APSR*, vol. 60 (June 1966), pp. 327-39.

Harry H. Harmon, *Modern Factor Analysis*, 2nd Revised Edition (University of Chicago Press, 1967).

NOTE: This exercise is complex and difficult. It is intended for advanced students with *some statistical* background. This exercise attempts only to acquaint the student with some of the notions of factor analysis. To understand thoroughly and use this technique, a student should consult several of the authoritative works on this topic.

As international relations grows more complex, it encourages the development of new highly sophisticated tools. Factor analysis is one of these new techniques. Others include discriminant function analysis, multivariate techniques, and causal modelling.

Let's take the same problem we found in Exercise 10 on United Nations voting. What we are looking for is the pattern of clustering of votes in the UN General Assembly. What are the major issues? How are nations grouped in voting for them? Our data will be a set of roll call votes on a large variety of issues by a large number of nations.

This data problem is a typical situation in international relations. There is a large number of observations for a large number of variables. The problem then is to reduce this mass of information to manageable form and still retain enough of the information to say something about theoretical concerns.

When we had two variables we drew a graph, plotting the points for each observation as shown in Figure 1. Then, as in Figure 2 we drew the line which "fit" best the points we plotted. This is the regression line.

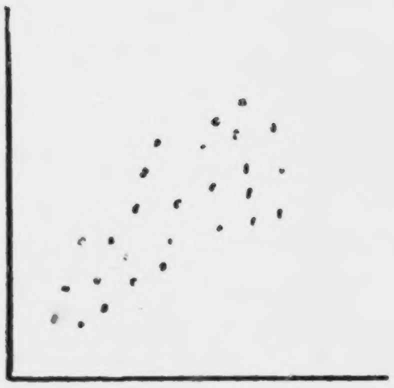

Figure 1

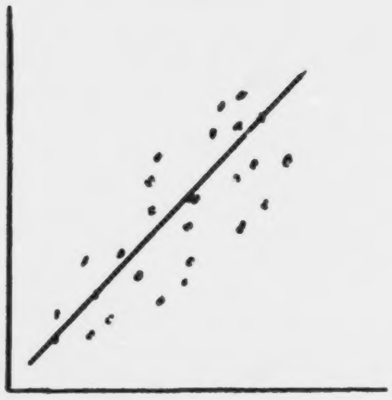

Figure 2

But suppose we want to show three variables each to be plotted against each other. Taking Figure 1 and plotting our points with a third variable, we would have "dots" representing the observations that were so many units high, so many units wide, and so many units deep, in other words, a three dimensional figure. Suppose we added another variable which cut the three dimensional figure diagonally (i.e., high, wide, deep, and diagonal). Even at this stage you can begin to see clusters of dots which are all together. Finding these clusters in a plotting of many dimensions (a vector plotting) is the task of factor analysis.

These clusters occur together for some reason. That reason is that they correlate highly with some underlying dimension which brings them all together. This underlying dimension is called a factor. A factor may be something we scarcely expect. Factors, thus, can account for much of the variance found in our study.

The starting point is the correlation coefficient discussed in other exercises. The correlation of each variable with each other variable yields a correlation matrix which can then be factor analyzed. We will not go into the mathematics here. If you have a computer available and there is a factor analysis program available to you, try doing this with some of the UN data provided. Select about 25 countries and 25 votes and make a correlation matrix with the aid of the computer and then analyze it, again using the computer. Using this kind of program will yield a "factor matrix" in which we are interested.

There are several types of factor analysis. In the Alker-Russett volume the "principal components" method is used. Thus, each factor will explain the maximum portion of the variance which is left unexplained by previous factors. The first factor will explain the most of the total variance. The second factor will explain the most of the total variance minus the first factor's explained variance. The amount of variance explained is given by the eigen values.

The output of a program will give you a list of the factor loadings on each factor. The factor loading is a correlation between that single variable, here a single roll-call vote, and the underlying factor. The position of each variable is given by the loading. If a variable has a high positive loading it is "very close" to the underlying variable, because they have a high correlation. If it has a low loading it is not highly correlated and probably not a part of the major cluster of that factor. If there are a group of variables which have high negative loadings on a single factor, that underlying factor (dimension) can have two clusters which are opposed to each other. Note that although the variables have a high negative loading, negative does not have the connotation of "against" anything, or opposed or negation of anything. It simply refers to placement on the axis.

This is an oversimplification of a complex process. You are urged to read the exposition of factor analysis in the Russett and Alker volume and to pursue the subject further in such works as Harmon.

At this point the mathematics of factor analysis stops and we are faced with an interpretative problem. We have determined that there are a series of loadings for each of several factors. We know how much variance is accounted for. Now all we have to do is tell about the factors and we have an analysis. But, this isn't so simple. Description of the underlying factors is a touchy, difficult interpretative job. Take the example given in Table 1 of the unrotated factor matrix from 1961, given by Alker and Russett. We are only taking four factors because they explain the most variance. Abstract from this table the variables with high positive loadings and high negative loadings on Factor 1 and enter them below (they are in dark print).

	High Positive Loadings	High Negative Loadings
Variables		

1) What kinds of patterns emerge? What can you say about this factor? Recall at this point these are only correlations with the factor, not descriptions of the factor itself.

2) What underlying dimension might correlate highly with each of the variables selected? Try to tell as much as you can about your interpretation of the first factor. Then select a single name for the factor in a few catchy words.

3) How does your interpretation compare with Russett and Alker's? Why do you think the differences occurred?

Try this same thing with the other three factors. Also apply it to other factor analyses, either ones you have tried on the computer or ones in other international relations articles as suggested at the beginning of this exercise.

4) What do these factors tell us about the kinds of events occurring in the General Assembly?

A note on rotation: An unrotated factor matrix is the set of factors which appear in the first way we look at the clusters of variables. If we were to run around to the back side, it would look somewhat different. The structure of the correlations wouldn't change but our view of the whole set of relationships would be different. This is what rotation does. It places the viewer on a different side to get a different look. Often it helps explain what is happening more clearly.

TABLE 1: Unrotated Factor Matrix - 1961 - Dimensions of UN Voting (taken from Alker and Russett, pp. 114-16)

	Factors			
Roll Calls	1	2	3	4
Censure South Africa	.63	.33	-.36	.02
Sanction South Africa	.84	.25	-.28	-.13
Security Council & South Africa	.88	.28	-.22	-.13
No arms to South Africa	.83	.22	-.15	-.21
No petrol to South Africa	.85	.21	-.20	-.16
Oman Self-determination	.84	.06	-.16	.26
Reconstitute Palestine Con. Com.	.38	-.03	-.00	.04
Reconstitute Palestine Con. Com.	.72	-.01	.01	.39
Protect Arab Refugees	.77	-.02	.07	.38
U.S.R.W.A.	-.64	.20	-.03	-.32
U.S. Palestine Resolution	-.70	.22	-.02	-.28
Czechoslovakia Resolution on UNSCEAR	.81	-.09	.01	-.12
Czechoslovakia Resolution important?	-.87	.05	.02	.03
Admit Mauritania	-.77	.17	-.14	-.28
China question important?	-.74	.19	-.49	.04
China Declaration	.67	.15	.54	-.25
Seat People's Republic of China	.63	.16	.55	-.32
Representation of China	.74	-.13	.45	-.27
Stop 50 Megaton bomb	-.55	.64	.17	-.03
General & complete disarmament	.88	.04	.03	-.11
Regret tests; need treaty	-.01	.86	.12	.15
Regrets rejection of U.S.-U.K.	-.70	.50	-.07	-.04
Denuclearize Africa	.70	.06	.43	.17
Charter bans nuclear weapons	.87	.31	-.11	-.11
Form non-nuclear club	.67	.10	.41	.17
Question of Algeria	.68	.16	.43	.12
North Korea and UNCURK	-.78	.32	-.25	.02
Report of UNCURK	-.88	.25	-.18	-.01
Deplores Hungary on Disrespect	-.92	.07	.04	.20
Noninterference in Cuba	.86	-.08	.23	.09
Friendly relations with Cuba	.92	.05	.10	-.11
Hold trade conference	.88	.23	-.06	-.17
Help primary producers	.44	.41	-.10	.25
Study trade conference	-.74	.37	-.03	-.17
Special international Dev. Agency	.57	.38	-.42	.34

TABLE 1: Unrotated Factor Matrix (cont.)

Roll Calls	Factors			
	1	2	3	4
Conference on patents	-.58	-.21	.36	-.37
Aid with 1% GNP	-.25	.74	.09	.01
Population & Economic Dev.	.53	-.13	.38	-.23
Tibet on Agenda	-.83	.31	-.03	.04
Resolution on Tibet	-.79	.44	-.17	-.06
Absentee marriage legal	-.02	-.38	-.33	-.17
Disallow "hatred & hostility"	.78	.17	-.31	-.15
Safeguard right of reply	.68	-.17	.10	-.07
Algerian prisoners	.78	.30	.10	-.15
1962 End of colonialism	.91	-.05	-.05	-.19
W. Irian self-determination	-.74	.11	-.25	-.34
Commission on W. Irian	-.78	.09	-.26	-.31
Indian resolution on W. Irian	.76	.01	.24	.40
Regrets Portugal non-compliance	-.83	-.29	.20	.09
Renew CINSGT	-.26	.84	.15	.08
Swedish resolution on S. Africa	-.80	-.12	.34	.18
Ask SC 17: S. Rhodesia SGT?	.87	.32	-.27	-.05
S. Rhodesia on agenda	.84	.34	-.25	-.04
1 man, 1 vote, S. Rhodesia	.86	.24	-.16	-.14
Regret UK acts on S. Rhodesia	.73	.40	-.30	.10
Condemn Portugal re Angola	.92	.04	-.05	-.13
Report on Angola	.80	.03	-.03	-.08
Angola & SC 17	.89	.16	-.08	-.00
Burundi Prime Minister	-.88	-.24	.18	.01
Rwanda & Burundi sovereign	-.82	.01	-.12	.09
Evacuate R. & B. by July 1, 1962	.95	.02	-.01	-.11
Rwanda & Burundi evacuation	.30	.40	-.05	.21
Rwanda & Burundi evacuation	-.30	.73	.06	.20
$2 mil. to Sec. Gen. for R. & B.	-.24	.66	.26	-.16
5 Sec. members/country	.57	.56	.07	-.02
Congo expenses & ICJ	-.74	.39	.20	.14
Congo cost	-.42	.55	.43	.07
UNEF expenses	-.50	.45	.43	-.02
Budget for year 1962	-.39	.60	.29	-.21
"All" attend conference	.91	-.06	.06	-.15
Variance accounted for (eigen values)	37.0	7.8	4.2	2.4

Laboratory Exercises in International Relations
Codebook

Part I: Country Identification numbers, columns 1-3

001	Afghanistan
002	Albania
003	Algeria
004	Argentina
005	Australia
006	Austria
007	Belgium
008	Bolivia
009	Brazil
010	Bulgaria
011	Burma
012	Burundi
013	Byelorussian SSR
014	Cambodia
015	Cameroun
016	Canada
017	Central African Republic
018	Ceylon
019	Chad
020	Chile
021	China
022	Colombia
023	Congo (Brazzaville)
024	Congo (Leopoldville)
025	Costa Rica
026	Cuba
027	Cyprus
028	Czechoslovakia
029	Dahomey
030	Denmark
031	Dominican Republic
032	Ecuador
033	El Salvador
034	Ethiopia
035	Finland
036	France
037	Gabon
038	Ghana
039	Greece
040	Guatemala
041	Guinea
042	Haiti
043	Honduras
044	Hungary
045	Iceland
046	India
047	Indonesia
048	Iran
049	Iraq
050	Ireland
051	Israel
052	Italy
053	Ivory Coast
054	Jamaica
055	Japan
056	Jordan
057	Kenya
058	Kuwait
059	Laos
060	Lebanon
061	Liberia
062	Libya
063	Luxembourg
064	Madagascar
065	Malaysia
066	Mali
067	Mauritania
068	Mexico
069	Mongolia
070	Morocco
071	Nepal
072	Netherlands
073	New Zealand
074	Nicaragua
075	Niger
076	Nigeria
077	Norway
078	Pakistan
079	Panama
080	Paraguay
081	Peru
082	Philippines
083	Poland
084	Portugal
085	Romania
086	Rwanda
087	Saudi Arabia
088	Senegal
089	Sierra Leone
090	Somalia
091	South Africa
092	Spain
093	Sudan
094	Sweden
095	Syria
096	Tanganyika

097	Thailand
098	Togo
099	Trinidad and Tobago
100	Tunisia
101	Turkey
102	Uganda
103	Ukrainian SSR
104	USSR
105	United Arab Republic
106	United Kingdom
107	USA
108	Upper Volta
109	Uruguay
110	Venezuela
111	Yemen
112	Yugoslavia

Part II: UN Roll Call Votes, columns 4-41

A punch in row 0 indicates absence or not voting
A punch in row 1 indicates a Yes vote
A punch in row 2 indicates a No vote
A punch in row 3 indicates an Abstention

Column

4 Resolution reaffirming the objectives of the UN in Korea and urging the unification of Korea under a representative government, December 13, 1963.

5 Resolution urging all states to refrain from aggravating tensions in the Caribbean area and, in effect, limiting the UN role in the Cuban problem, April 21, 1961.

6 Amendment to the resolution urging a halt to nuclear weapons tests which would provide for suitable inspection procedures to insure detection of underground tests, November 5, 1962.

7 Resolution urging removal of the Nationalist Chinese representatives from all UN organs and the seating of the representatives from Communist China in their place, October 21, 1963.

8 Resolution requesting the Secretary General to take any initiatives he deemed necessary in regard to the problem of Hungary, December 20, 1962.

9 Resolution urging the United Kingdom not to grant independence to Southern Rhodesia until a fully representative government was established on the basis of one-man, one-vote, October 14, 1963.

10 Resolution condemning Portugal for non-compliance with the UN Charter and urging all states to refrain from offering Portugal assistance which would enable it to continue its repression of the people under Portuguese administration, December 11, 1962.

11 Resolution urging all states to use their influence to persuade the British government to settle the Rhodesian question on the basis of majority rule and universal adult suffrage, November 6, 1963.

12 Resolution condemning Portugal's war against Angola and requesting the Security Council to take measures necessary to bring a halt to the war, December 18, 1962.

Column

13 Resolution urging the inclusion of the Rhodesian question on the agenda of the General Assembly, June 12, 1962.

14 Resolution urging the enlargement of the Economic and Social Council, December 17, 1963.

15 Resolution condemning all nuclear weapons tests and urging an end to all such tests by January 1, 1963, November 5, 1962.

16 Resolution expressing concern over the resumption of nuclear weapons tests and urging all states to refrain from such tests, November 6, 1961.

17 Resolution urging the enlargement of the Security Council to reflect the increased membership in the UN, December 6, 1960.

18 Resolution to create a commission of investigation into the death of Mr. Lumumba, April 15, 1961.

19 Resolution requiring that a two-thirds majority would be needed to change the representation of China in the UN, December 15, 1961.

20 Resolution urging adherence to the principles of self-determination and non-interference in the internal affairs of any state with reference to Cuba's complaint of threatened U.S. aggression against Cuba, February 20, 1962.

21 Resolution to place the question of Hungary on the agenda of the General Assembly, September 24, 1962.

22 Resolution urging the seating of Communist China, October 30, 1962.

23 Resolution expressing concern over U.S.-Cuban relations, April 21, 1961.

24 Resolution appealing to the USSR to refrain from exploding its 50-megaton bomb in the atmosphere, October 27, 1961.

25 Resolution urging the renewal of negotiations to ban nuclear testing and to set up an inspection agency to ensure compliance of all states, November 8, 1961.

26 Resolution urging the Security Council to consider the admission of Mauritania to the UN and affirming that Mongolia is a peace-loving state, April 19, 1961.

27 Resolution urging the conclusion of a nuclear test ban treaty with inspection provisions, November 6, 1962.

28 Resolution urging the admission of Mauritania to the UN, October 27, 1961.

29 Resolution allocating assessments for the UN Congo operations among the member-states, December 20, 1961.

30 Resolution allocating assessments for the UN Congo operations among the member-states, April 21, 1961.

Column

31 Resolution urging UN protection of members of the Congolese parliament and non-interference in Congolese internal affairs, April 15, 1961.

32 Resolution urging an end to the civil war and the foreign military intervention in the Congo, April 15, 1961.

33 Resolution calling for complete and immediate withdrawal of all Belgian military personnel and mercenaries from the Congo, April 15, 1961.

34 Resolution requesting separate consideration of the operative paragraphs of the resolution urging independence for Angola, January 30, 1962.

35 Resolution requesting the Special Committee to consider whether Southern Rhodesia had attained a full measure of self-government in light of the disenfranchisement of a majority of the people of that country, February 23, 1962.

36 Resolution condemning Portugal's repressive measures in Angola and urging application of sanctions on Portugal, January 30, 1962.

37 The operative paragraph of the resolution urging independence for Angola, January 30, 1962.

38 Resolution to enlarge the membership of the Economic and Social Council, December 5, 1960.

39 Resolution urging the United Kingdom to implement majority rule in Southern Rhodesia on the basis of one-man, one-vote, October 31, 1962.

40 Resolution condemning South Africa's apartheid policy and urging all nations to apply sanctions, November 6, 1962.

41 Resolution to enlarge the membership of the Security Council, December 17, 1963.

Part III: Social, Economic and Demographic Variables, columns 42-59

Column Description

42 Size (in square kilometers)

1. Over 20 million
2. 7.5-20 million
3. 2 - 7.4 million
4. .75 - 1.9 million
5. 250 - 749 thousand
6. 75 - 249 thousand
7. 30 - 74 thousand
8. 10 - 29 thousand
9. Under 10 thousand

Source: Russett, et. al., Table 40

Column	Description
43	Total Population, 1961 1. Over 300 million 2. 70 - 300 million 3. 30 - 69 million 4. 20 - 29 million 5. 10 - 19 million 6. 6 - 9 million 7. 3.5 - 5.9 million 8. 2.0 - 3.4 million 9. Under 2 million Source: Russett, *et. al*., Table 1
44	Population Density (per square kilometer) 0. Over 500 1. 250 - 500 2. 150 - 249 3. 100 - 149 4. 70 - 99 5. 50 - 69 6. 30 - 49 7. 15 - 29 8. 10 - 14 9. Under 10 Source: Russett, *et. al*., Table 41
45	Population Growth Rate (1958-1961) 0. Over 10% 1. 4 - 10% 2. 3.5 - 3.9% 3. 3.0 - 3.4% 4. 2.5 - 2.9% 5. 2.0 - 2.4% 6. 1.5 - 1.9% 7. 1.0 - 1.4% 8. .5 - .9% 9. Under .5% Source: Russett, *et. al*., Table 8
46	Urbanization (% of population in cities over 20 thousand) 0. Over 75% 1. 60 - 74% 2. 45 - 59% 3. 35 - 44% 4. 32 - 34% 5. 25 - 31% 6. 15 - 24% 7. 10 - 14% 8. 5 - 9.9% 9. Under 5% Source: Russett, *et. al*., Table 9

Column	Description
47	Agricultural Population (% labor force employed in agriculture) 0. Over 90% 1. 80 - 89% 2. 70 - 79% 3. 60 - 69% 4. 50 - 59% 5. 40 - 49% 6. 30 - 39% 7. 20 - 29% 8. 10 - 19% 9. Under 10% Source: Russett, et. al., Table 50
48	Gross National Product, 1957 (in U.S. dollars) 0. Over 250 billion 1. 50 - 250 billion 2. 25 - 49 billion 3. 10 - 24 billion 4. 5 - 9.9 billion 5. 2.5 - 4.9 billion 6. 1 - 2.4 billion 7. 500 - 999 million 8. 250 - 499 million 9. Under 250 million Source: Russett, et. al., Table 43
49	Gross National Product per capita, 1957 (in U.S. dollars) 0. Over 2000 1. 1000 - 2000 2. 500 - 999 3. 400 - 499 4. 300 - 399 5. 200 - 299 6. 100 - 199 7. 75 - 99 8. 50 - 74 9. Under 50 Source: Russett, et. al., Table 44
50	Annual Growth Rate of GNP per capita, circa 1948-1963 1. Over 7% 2. 6 - 6.9% 3. 5 - 5.9% 4. 4 - 4.9% 5. 3 - 3.9% 6. 2 - 2.9% 7. 1 - 1.9% 8. 0.0 - 0.9% 9. Negative Sources: Russett, et. al., Table 45 Worldmark Encyclopedia Yearbook of Encyclopedia Brittanica

Column Description

51 Energy Consumption per capita, 1962 (in kilowatt hours)

0. Over 7500
1. 5000 - 7499
2. 2500 - 4999
3. 1250 - 2499
4. 750 - 1249
5. 500 - 749
6. 300 - 499
7. 200 - 299
8. 100 - 199
9. Under 100

Source: UN Statistical Yearbook

52 Annual Growth Rate of Energy Consumption per capita, 1959-1962

0. Over 8%
1. 7.0 - 7.9%
2. 6.0 - 6.9%
3. 5.0 - 5.9%
4. 4.0 - 4.9%
5. 3.0 - 3.9%
6. 2.0 - 2.9%
7. 1.0 - 1.9%
8. 0.0 - 0.9%
9. Negative

Source: UN Statistical Yearbook

53 Literacy Rate

0. Over 90%
1. 80 - 89%
2. 70 - 79%
3. 60 - 69%
4. 50 - 59%
5. 40 - 49%
6. 30 - 39%
7. 20 - 29%
8. 10 - 19%
9. Under 10%

Source: Russett, *et. al*., Table 64

54 Newspaper Circulation (per 1000 population)

0. Over 400
1. 300 - 399
2. 200 - 299
3. 100 - 199
4. 75 - 99
5. 50 - 74
6. 25 - 49
7. 10 - 24
8. 1 - 9
9. Under 1

Source: Russett, *et. al*., Table 31

Column Description

55 Religion (% of population Christian)

0. Over 99%
1. 90 - 99%
2. 80 - 89%
3. 65 - 79%
4. 50 - 64%
5. 35 - 49%
6. 20 - 34%
7. 10 - 19%
8. 1 - 9%
9. Under 1%

Sources: Russett, et. al., Table 74
Worldmark Encyclopedia

56 Catholics (as % of population)

0. Over 99%
1. 95 - 99%
2. 90 - 94%
3. 80 - 89%
4. 60 - 79%
5. 40 - 59%
6. 20 - 39%
7. 10 - 19%
8. 5 - 9%
9. Under 5%

Sources: Russett, et. al., Table 73
Worldmark Encyclopedia

57 Moslems (as % of population)

0. Over 99%
1. 90 - 99%
2. 80 - 89%
3. 60 - 79%
4. 40 - 59%
5. 20 - 39%
6. 10 - 19%
7. 5 - 9%
8. 1 - 4%
9. Under 1%

Source: Russett, et. al., Table 75

58 Deaths from Domestic Group Violence, 1951-1961 (per one million population)

0. Over 1000
1. 500 - 999
2. 100 - 499
3. 50 - 99
4. 10 - 49
5. 5 - 9
6. 1 - 4
7. 0.5 - .99
8. .01 - .49
9. None

Sources: Russett, et. al., Table 29
Tanter Table 22
Worldmark Encyclopedia
Yearbook of Encyclopedia Brittanica

Column	Description
59	Executive Stability, 1945-1961 (number of years independent/ number of chief executives)
	1. 17
	2. 10 - 16
	3. 8 - 9
	4. 5 - 7
	5. 4 - 4.9
	6. 3 - 3.9
	7. 2 - 2.9
	8. 1 - 1.9
	9. Under 1
	Sources: Russett, et. al., Table 30 Worldmark Encyclopedia Yearbook of Encyclopedia Britannica

Glossary

Aggregate data	Data which summarizes information collected across a large number of units. For example, statistics on national literacy rates combine and summarize information about the reading ability of individuals within a territorial unit.
Additive relationship	A relationship among two or more indicators or variables whose properties are most meaningfully combined by summing them rather than by multiplying them or using some other formula. For example, in assigning weights to UN votes and then adding them to arrive at a country score on some issue dimension, we are assuming that a country's relative position on that issue is best understood by adding its individual votes.
Bimodal distribution	Any distribution of items having two peaks. A graph of such items would show a line which curves to a high at two places on the graph.
Central tendency measures	Any of several summary statistics which indicate the tendency of cases in a frequency distribution to cluster around some central value in the distribution. The mean, median and mode are the most common measures of central tendency.
Chi-square tests	Statistical tests for determining the closeness of fit or association between two frequency distributions. It is most useful for contingency problems but requires a fairly large sample size.
Concept	An idea that links or combines a number of other ideas or events in terms of some common underlying property. Conflict, for example, may be thought of as a concept linking a number of events involving violence, disagreement, etc.
Conceptual framework	A set of concepts, which are presumed related, which purport to serve as an organizing device for study of some problem. A conceptual framework guides one in the selection of data, but unlike a theory, does not specify the laws governing the relationships among the concepts.

Content Analysis	A research technique for systematically and objectively generating data by examining written or oral materials for the occurrence of specified units of analysis.
Contingency tables	A joint frequency distribution of qualitative items.
Control variable	Any variable held constant so that the independent effect of another variable upon the dependent variable may be assessed.
Correlation	Any of several measures of association between two variables. Such measures attempt to assess the degree to which two variables are interrelated, i.e., the degree to which a change in one is associated with a change in the other.
Cross-tabulation	A process of grouping the items on two frequency distributions and then examining the joint occurrence of these items. Cross-tabulation is essentially the process of constructing contingency tables.
Descriptive statistics	Methods for organizing, condensing and communicating data. To illustrate, if we wish to communicate information about the annual income of families in a set of countries, rather than state each family's income separately, we can conveniently convey this information as the median family income for each country. Note, however, that certain information is lost when we use a statistic to summarize our data.
Eigen value	In factor analysis, a statistic indicating the amount of variance in the individual variables accounted for by a particular factor or dimension.
Error (in Guttman scaling)	Responses which do not conform to the response pattern for that particular scale of variables.
Factor	A general dimension underlying a set of variables which are highly interrelated. A factor is a hypothetical construct used to "name" or "explain" this set of interrelations. It is the end product of a factor analysis, a statistical technique.

Factor analysis	A mathematical technique for reducing a large number of interrelated variables into a smaller set of underlying dimensions, which are called factors.
Factor loadings	A measure of the association between a variable and a factor or underlying dimension.
Frequency distribution	The arrangement of the specific values of some variable into specified categories according to their frequency of occurrence. For example, we could collapse our data on the median agricultural income variable into high, medium and low categories and then examine the frequency with which countries fall into each of these categories.
Hypothesis	A statement of relationship between two or more variables which is capable of being empirically verified.
Independent random sample	A sample of individuals or units drawn in such a way that each unit in the larger population has an equal chance of being included in the sample. Thus the choice of unit A in no way affects the chances of units B, C, etc. of being included in the sample.
Index	Same as an indicator although in practice an index is often composed of several indicators. An index allows one to assign numerical scores or weights to countries or other units of observation on the basis of several presumably related indicators.
Index of agreement	A measure of voting cohesion which treats abstentions as partial agreements. Applied to UN voting, the index is calculated by adding the number of votes on which two countries agree plus one-half the number on which they are in partial agreement (one abstains), dividing this sum by the total number of votes in which both participated, and finally multiplying the result by 100%.
Index of intra-group cohesion	A measure of voting cohesion assessing the extent to which a distribution of votes by members of a group departs from randomness. For any single vote the index is the difference between the percent voting for the issue minus those voting against. Thus, if a group voted 90% for and 10% against, the index would equal 80%. If the group split evenly, the index would be 0.

Index of likeness	A measure of inter-group difference. The index is constructed by determining the percentage of affirmative votes in two groups, substracting the smaller percentage from the larger, and then subtracting the remainder from 100.
Indicator	An indirect measure of some concept or phenomenon which is known to be empirically associated with that phenomenon. For example, we might measure the power of a nation by looking at such indicators as GNP and population size which we know from experience are associated with our concept of power.
Inferential statistics	A body of theory and methods for arriving at conclusions about the nature of entire populations by examining relatively small samples of members from that population. The prediction of election outcomes on the basis of the results of small public opinion polls is an example of the use of inferential statistics.
Interaction	A concept in statistics referring to the unique or independent effect of combinations of variables. Thus literacy or urbanization may both be separately associated with democratic development, but they may also have a combined effect on such development when both are present at the same time.
Interval scale	Data arranged in a scale form in a way that shows how large the intervals or distances are between each of the units on the scale. Using data that conforms to the criteria for an interval scale, we can make such statements as country A has a GNP of $10 billion more than country B which has a GNP of $10 billion more than country C.
Mean	A measure of central tendency, commonly known as the average, formed by summing a set of items and then dividing this sum by the total number of items in the set.
Measurement scales	Any of a number of instruments for classifying or ordering a set of related and usually qualitative observations. Such scales are useful for quantifying otherwise qualitative data.

Measures of association	Any of a number of statistics which indicate the strength or degree of interrelationship between two variables, i.e., the degree to which two variables vary together.
Measures of dispersion	A measure of the scatter, dispersion or spread of items around some measure of central tendency, usually the mean. Variance and standard deviation are the two most common measures of dispersion.
Median	A measure of central tendency corresponding to the middle item or midpoint of a distribution so that one half of the items in the distribution fall on either side of the median value.
Methodology	A set of rules and procedures which link a theory to the empirical phenomenon it is to explain.
Mode	A measure of central tendency which indicates the most frequently occurring item or value in a distribution of items.
Model	An analogue to some object or problem of interest, usually involving a simplification of the elements and relationships in that problem.
Nominal scale	A set of units grouped into qualitatively different classes or categories. An example of a nominal scale would be the grouping of countries into such categories as democratic, oligarchical or totalitarian.
Normal distribution	A symmetrical bell-shaped distribution of items in which the mode, median and mean are identical. The normal distribution is an important theoretical concept underlying much of inferential statistics.
Operationalization	The process of specifying the procedures necessary for empirical identification of concepts. The concept of image, for example, has no empirical meaning until one defines rules or procedures for identifying it in the real world. An image might be operationally defined as an individual's set of attitudes about some foreign country measured in terms of a set of questions asked of that individual. Other rules or procedures could be specified leading to a different measure of image. Thus the conclusions one draws in analyzing concepts depend to some extent on the operationalization of that concept.

Ordinal scale	A set of units that can be ranked or ordered so that if A is larger in magnitude than B and B is larger than C, then A is also larger than C. Note that units can only be ranked using this type of data: we cannot tell how much larger one unit is than another.
Parameter	A defining characteristic or value of a population. For example, if the ages of all members of the population of University of Minnesota students were known, we could determine the mean age for this population as well as its variance and standard deviation. These defining characteristics are known as the parameters of that population. The mean and standard deviation of a random sample from such a population are known as statistics and under certain conditions can be used as estimates of the population parameters. The concept has also come into use in systems theory. Here it refers to the essential or defining characteristics of a specified system. In this sense, parameters may be thought of as those variables essential to the operation, delimiting and maintenance of a given system.
Population	The totality or universe of potential units of observation from which one draws a sample. If one wants to sample student opinion about foreign countries he must first specify the population of students to which he wishes to generalize. The population might be defined as University of Minnesota students or perhaps all students enrolled in full-time work at all American colleges and universities. The specification of the population is important because the drawing of inferences from random samples depends on the degree to which the distribution of units in the sample corresponds to the distribution of units in the population.
Random number tables	A table of numbers ranging from 0 to 9, composed in such a way that each number is equally likely to occur in any location in the table. Such tables may be useful for random sampling provided one can economically list and assign numbers to all of the units of the population from which the sample is to be selected.

Ratio scale	A set of units which conform to the requirements of an interval scale but also have a point of origin, usually zero. For data conforming to ratio scales, we can make statements such as X is twice as great in magnitude as Y.
Reliability	The degree to which a measure or indicator of a concept retains its value or quality when used in successive measurements by the same or other researchers. For example, if two students were given the same set of instructions for grouping a list of countries into democratic or totalitarian categories and they came up with extremely different results, we could conclude that those instructions were not very reliable for measuring democracy.
Sample	Any set of units or individuals which are in some way considered to be representative of some larger population of which they are a part.
Sampling error	Error resulting from the use of a sample rather than the total population of units.
Scale score	A number assigned an observation or unit as a result of its position on a measurement scale.
Scaling	Any of several procedures for ordering a set of data along some dimension so that mathematical operations may be performed on the data.
Simulation	A method for representing the central features of reality in order to learn something about these elements and the relationships among them. (For a more thorough discussion see Exercise 7.)
Skewed distribution	A distribution of items in which the mode does not fall at the center of the distribution but to the right or left of center.
Standard deviation	A measure of dispersion around the mean of a distribution formed by taking the square root of the mean of the squares of each item's deviation from the mean of the distribution. The formula for the standard deviation for a frequency distribution is:

Standard deviation (cont.)	$s = \sqrt{\frac{(X_1-\bar{X})^2 + (X_2 - \bar{X})^2 \ . \ . \ . + (X_N - \bar{X})^2}{N}}$ where X_1 is the value for the first item, X_N is the value of the last item, $\bar{X}$ is the value of the mean of the distribution, and N is the total number of items. An advantage of this measure of dispersion is that given a normal or approximately normal distribution, knowledge of the standard deviation will allow us to determine the proportion of the items falling within that range of deviation from the mean.
Statistical significance	An inference that a given hypothesis about some population is true within a specified range of probability.
Stratified sample	A sample designed to include units from specified sub-groups of a population. A sample designed to include students, professors and administrative staff would be one example of a stratified sample of the population of a university community.
Survey research	A method for systematically generating data on some problem by collecting the responses of people to a set of related questions.
Theory	A set of concepts and the laws or principles specifying the nature of the relationship among these concepts. (For a further discussion of theory, see Exercise 1.)
Transactions	Exchanges of units of some sort across the boundaries of a system. International trade would involve a set of transactions or exchanges of economic goods and services across national boundaries.
Unimodal distribution	Any distribution of items having a single peak or mode.
Validity	The degree to which a measure or indicator of a concept actually taps or measures that concept. For example, using GNP as an indicator of national power is only valid if it, in fact, taps the relationship we label as power.
Variable	A symbol or name for a set of elements that vary in value. For example, literacy may be considered a variable when comparing countries for some purposes. Each country's literacy rate would then be considered an element in this variable.